

8/19/04

Set	Items	Description
S1	290	(SIZING OR SIZE OR SIZES) (5N) (SERVER? ? OR WEBSEVER? ? OR DATABASE? ? OR DBMS OR RDBMS)
S2	2678	(REQUIR? OR NEEDS OR NECESS? OR DEMAND? ? OR CONFIGUR?) (3N- ) (SERVER? OR WEBSEVER? OR APPLICATION? OR PROGRAM? ? OR SOFTWARE OR DATABASE? OR DBMS OR RDBMS) (3N) (HARDWARE OR CLIENT? ? OR PC? ? OR COMPUTER? ? OR WORKSTATION? ?)
S3	2259	(REQUIR? OR NEEDS OR NECESS? OR DEMAND? ? OR CONFIGUR?) (3N- ) (SERVER? OR WEBSEVER? OR APPLICATION? OR PROGRAM? ? OR SOFTWARE OR DATABASE? OR DBMS OR RDBMS) (3N) (TERMINAL? ? OR DEVICE? ? OR EQUIPMENT OR MACHINE? ? OR OPERATING)
S4	38737	(WORKLOAD? ? OR WORK()LOAD? ? OR PROCESSING OR PERFORMANCE OR CAPACITY) (5N) (REQUIR??? OR REQUIREMENT? ? OR NEEDS OR NECESSARY OR NECESSIT???? OR DEMAND? ?)
S5	18765	(TYPE? ? OR KIND? ? OR SORT? ? OR FAMILY OR CATEGORY OR CLASS OR BRAND? ? OR VARIET??? OR GROUP? ?) (5N) (SERVER? ? OR WEBSEVER? ? OR APPLICATION? ? OR PROGRAM? ? OR SOFTWARE? ? OR DATABASE? ? OR DBMS OR RDBMS)
S6	86897	(PROCESSOR? OR MICROPROCESSOR? OR PROCESSING()UNIT OR CPU - OR MPU) (5N) (UTILIZ? OR UTILIS? OR USE? ? OR ACTIVE OR BUSY OR WORKING OR OPERAT??? OR OPERATION? ? OR FUNCTION? ? OR FUNCTIONING OR RUN???? OR ACTIVE OR ACTIVIT???)
S7	5428	(PROCESSOR? OR MICROPROCESSOR? OR PROCESSING()UNIT OR CPU - OR MPU) (5N) (IDLE? ? OR IDLING OR INACTIV? OR INOPERA? OR REST? OR WAIT? OR LATENC??? OR LATENT)
S8	56592	(TRANSACTION? ? OR ACTIVIT??? OR PROCESSES OR ACTION? ? OR EVENT? ? OR JOB? ? OR TASK? ? OR REQUEST? ? OR QUERY OR QUERIES) (5N) (RATE OR SPEED OR TIME OR SECOND? ? OR MINUTE? ?) OR TPS
S9	36	S1 AND (S4:S8 OR BENCHMARK? ?)
S10	308	S2:S3 AND S4
S11	551	S2:S3 AND S5:S8
S12	221	S10 AND IC=G06F
S13	169	(WORKLOAD? ? OR WORK()LOAD? ?) (5N) (REQUIR??? OR REQUIREMENT? ? OR NEEDS OR NECESSARY OR NECESSIT???? OR DEMAND? ?)
S14	1	S2:S3 AND S13
S15	21897	(REQUIR??? OR REQUIREMENT? ? OR NEEDS OR NECESSARY OR NECESSIT???? OR DEMAND? ?) (5N) (SERVER? ? OR WEBSEVER? ? OR APPLICATION? ? OR PROGRAM? ? OR SOFTWARE? ? OR DATABASE? ? OR DBMS OR RDBMS)
S16	114620	(REQUIR??? OR REQUIREMENT? ? OR NEEDS OR NECESSARY OR NECESSIT???? OR DEMAND? ?) (5N) (HARDWARE OR CLIENT? ? OR PC? ? OR COMPUTER? ? OR SYSTEM? ? OR WORKSTATION? ? OR TERMINAL? ? OR DEVICE? ? OR EQUIPMENT OR MACHINE? ? OR OPERATING)
S17	32	S13 AND S15:S16
S18	2359	S4 AND S5:S8
S19	12	S13 AND S5:S8
S20	7	S19 NOT (S9 OR S17)
S21	50	S13 AND IC=G06F
S22	33	S21 NOT (S9 OR S17 OR S20)
S23	28	S5 AND S6:S7 AND S8
S24	2	AU="QUERNEMOEN J M"

9/5/2 (Item 2 from file 347)  
DIALOG(R)File 347:JAPIO  
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06537314 \*\*Image available\*\*  
DATABASE DEVICE, DATABASE ACCESS METHOD AND RECORDING MEDIUM RECORDED WITH  
DATABASE ACCESS PROGRAM

PUB. NO.: 2000-123038 [JP 2000123038 A]  
PUBLISHED: April 28, 2000 (20000428)  
INVENTOR(s): SHU SHOGAN  
TOYODA SHOICHI  
APPLICANT(s): MITSUBISHI MATERIALS CORP  
APPL. NO.: 10-294138 [JP 98294138]  
FILED: October 15, 1998 (19981015)  
INTL CLASS: G06F-017/30; G06F-012/00

#### ABSTRACT

PROBLEM TO BE SOLVED: To provide a database device for adding or deleting a field without changing the configuration of a database.

SOLUTION: This database device is provided with a corresponding relation part 4a having a corresponding relation table in which the field name of a field defined in a **database** 1, the **type** and **size** of data stored in the field, and column number applied to the field are stored so as to be made correspond to each other, a data storing part 4e for generating a data record from data inputted by an input part 4b by referring to the corresponding relation table, and a record reading and restoring part 4f for extracting the data record matched with a retrieval condition inputted by the input part 4b from the database 1, restoring the data inputted by the input part 4b from the data record by referring to the corresponding relation table and outputting the data to an output part 4c.

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9/5/4 (Item 4 from file: 347)  
DIALOG(R)File 347:JAPIO  
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05650618 \*\*Image available\*\*  
DATA STORAGE DEVICE

PUB. NO.: 09-265418 [JP 9265418 A]  
PUBLISHED: October 07, 1997 (19971007)  
INVENTOR(s): NISHIDA YOSHIO  
APPLICANT(s): OKI ELECTRIC IND CO LTD [000029] (A Japanese Company or Corporation), JP (Japan)  
APPL. NO.: 08-075568 [JP 9675568]  
FILED: March 29, 1996 (19960329)  
INTL CLASS: [6] G06F-012/00  
JAPIO CLASS: 45.2 (INFORMATION PROCESSING -- Memory Units)

#### ABSTRACT

PROBLEM TO BE SOLVED: To enlarge/reduce a database area without making a manager to be conscious by deciding the necessity of enlarging/reducing the size of a storage area and enlarging/reducing the storage area.

SOLUTION: In a database management system 3, by a function as an area change means, the **size** of the **database** area 2 is enlarged/reduced. Also, in the database management system 3, by the function as a deciding means, the data amount of a data **group** stored in the **database** area 2 and the **size** of the **database** area 2 are compared under prescribed conditions and whether or not dynamic area securing to the database area 2 is required is decided. In the server 1, a dynamic area securing processing is called at every T time interval. When the dynamic area securing processing is called, by the database management system 3 area enlargement or area reduction to the database area 2 is automatically performed.

9/5/22 (Item 16 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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012865359 \*\*Image available\*\*  
WPI Acc No: 2000-037192/200003  
XRPX Acc No: N00-027903

**Multidimensional computerized resource scheduling method for satellite communication system**

Patent Assignee: TELOGY NETWORKS INC (TELO-N)  
Inventor: BERISFORD D; DIMITRIJEVIC D D  
Number of Countries: 001 Number of Patents: 001  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5978363	A	19991102	US 96733475	A	19961018	200003 B

Priority Applications (No Type Date): US 96733475 A 19961018

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 5978363	A	25	H04B-007/185	

Abstract (Basic): US 5978363 A

NOVELTY - During scheduling and unscheduling, a record that matches with the indivisible and range divisible resource request is searched from a database, and if the record is not found, the request is rejected. A request for scheduling and unscheduling percentage divisible resources is rejected, when the available level is inadequate.

DETAILED DESCRIPTION - An algorithm for scheduling an indivisible resource causes searching of the resource database on receipt of a request to schedule the resource for a specific interval. If no available record matching the request is found, the request is rejected. If the available record is found it is made unavailable for the requested interval. A new record is created for any portion of the available record either prior to the interval or after the interval. An algorithm for scheduling use of a percentage divisible resource involves searching all of the database corresponding to a **time** period on receiving a **request** to schedule the percentage divisible resource. The request is rejected if the available resource level is inadequate in such records, otherwise, the level of each record which would be affected by the request is adjusted upwards for any amount requested to be unscheduled and downwards for any resource requested to be scheduled. A new record is created for any time slot prior to the **time** period specified by the **request** with an unchanged level of the available resource and then, the new record is merged with any left slot with the same level of resource available. Similarly another new record is created for any time slot following the time of the **time** period specified by the **request** with an unchanged level of available resource and the created new record is merged with any right slot with same level of resource available. An algorithm for scheduling the use of range divisible resources is also described.

USE - As a database on a scheduling computer used especially with DAMA satellite communication systems.

ADVANTAGE - Reduces **size of database**, since unwanted records are deleted. Since two slots are merged, the required amount of power is reduced.

DESCRIPTION OF DRAWING(S) - The figure shows the block diagram of bandwidth on demand network architecture.

pp; 25 DwgNo 6/16

Title Terms: MULTIDIMENSIONAL; RESOURCE; SCHEDULE; METHOD; SATELLITE;  
COMMUNICATE; SYSTEM

Derwent Class: T01; W02

International Patent Class (Main): H04B-007/185

International Patent Class (Additional): H04B-007/212

File Segment: EPI

9/5/23 (Item 17 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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012712063 \*\*Image available\*\*  
WPI Acc No: 1999-518176/199943  
XRPX Acc No: N99-385369

**Frequency moments estimating method for database**

Patent Assignee: LUCENT TECHNOLOGIES INC (LUCE )

Inventor: ALON N; MATIAS Y; SZEGEDY M

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5950185	A	19990907	US 9617950	A	19960520	199943 B
			US 97861415	A	19970521	

Priority Applications (No Type Date): US 9617950 P 19960520; US 97861415 A 19970521

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5950185	A		9	G06F-017/00	Provisional application US 9617950

Abstract (Basic): US 5950185 A

NOVELTY - A subset M of the data elements of specific type that are received as input to the database is chosen randomly. The counters provided for each subset are incremented corresponding to the type of elements in the subset is identical with the **type** of element in the **database**. A random variable is computed for each subset of data elements.

DETAILED DESCRIPTION - The random variable for each subset of data elements is given by  $f'u(ru)=(ru)k-(ru-1)k$  where ru is the current count of counter corresponding to the subset data element. The random variable is processed to determine the estimate of frequency moment fk. The random variables f'(ru) are grouped into M2 groups of M1 elements. An average value fv for M1 elements are calculated. Then, median value of fasterisk is obtained for M2 quantities of fv values. An estimate for Fk is computed as mfasterisk where m is the **size** of the **database**.

USE - For database.

ADVANTAGE - Memory requirement is relatively reduced for estimating frequency moment by providing counters for the chosen subset of data elements.

DESCRIPTION OF DRAWING(S) - The figure shows the flow chart of steps involved in computing the frequency moment.

pp; 9 DwgNo 3/3

Title Terms: FREQUENCY; MOMENT; ESTIMATE; METHOD; DATABASE

Derwent Class: T01

International Patent Class (Main): G06F-017/00

File Segment: EPI

9/5/27 (Item 21 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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011860004 \*\*Image available\*\*  
WPI Acc No: 1998-276914/199825  
XRPX Acc No: N98-217823

**Multimedia information server system used in WWW, internet - decides size of image blocks and decimation priority of each block of multimedia data, based on reception capacity of terminal which raises demand for data**

Patent Assignee: NEC CORP (NIDE )

Inventor: ARIGA K

Number of Countries: 002 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 10091562	A	19980410	JP 96265220	A	19960913	199825 B

Priority Applications (No Type Date): JP 96265220 A 19960913

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 10091562	A		9	G06F-013/00	
US 5920865	A			G06F-017/00	

Abstract (Basic): JP 10091562 A

The system includes a gate way (11) which is installed between a LAN to which an information server (15) is connected, and a low speed wireless network to which a wireless mobile terminal (13) is connected. The multimedia information comprises screen information divided into multiple image blocks. The gate way, on receiving data acquisition request from a terminal, notifies the reception capacity of the terminal to the information server.

The information **server** decides the **size** of the image blocks and their decimation priorities according to the capacity of the terminal. The multimedia data are then transmitted to the terminal through the gate way.

ADVANTAGE - Improves transmission efficiency and operability.

Dwg.1/7

Title Terms: INFORMATION; SERVE; SYSTEM; DECIDE; SIZE; IMAGE; BLOCK; DECIMATE; PRIORITY; BLOCK; DATA; BASED; RECEPTION; CAPACITY; TERMINAL; RAISE; DEMAND; DATA

Derwent Class: T01; W01; W02

International Patent Class (Main): G06F-013/00; G06F-017/00

International Patent Class (Additional): H04L-012/56; H04N-007/173

File Segment: EPI

9/5/28 (Item 22 from file: 350)

DIALOG(R) File 350: Derwent WPIX

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011859952 \*\*Image available\*\*

WPI Acc No: 1998-276862/199825

XRPX Acc No: N98-217771

**Terminal equipment connected to client-server network - alters size of data read from server in accordance with value of resource required for reading of files stored in server**

Patent Assignee: MATSUSHITA DENKI SANGYO KK (MATU )

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 10091496	A	19980410	JP 96244561	A	19960917	199825 B

Priority Applications (No Type Date): JP 96244561 A 19960917

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 10091496	A		22	G06F-012/00	

Abstract (Basic): JP 10091496 A

The terminal equipment includes a calculator (5) to compute resource required to read out several files simultaneously. A resource request unit (6) transmits a request to secure the computed resource in the server (1). A file reader (8) reads file based on the request from the **server**, data **size** read out from the **server** is altered in accordance to the value of the resource required for reading of each file.

USE - In e.g. video **server**. ADVANTAGE - Reduces receiving buffer **size**. Utilizes resource effectively. Shortens response **time** for each send out **request**.

Dwg.1/15

Title Terms: TERMINAL; EQUIPMENT; CONNECT; CLIENT; SERVE; NETWORK; ALTER; SIZE; DATA; READ; SERVE; ACCORD; VALUE; RESOURCE; REQUIRE; READ; FILE; STORAGE; SERVE

Index Terms/Additional Words: VIDEO; ON; DEMAND

17/5/2 (Item 2 from file 347)  
DIALOG(R)File 347:JAPIO  
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06882114 \*\*Image available\*\*  
DEVICE AND METHOD FOR SUPPORTING ESTIMATION OF WORKLOAD AND STORAGE MEDIUM  
STORING PROGRAM

PUB. NO.: 2001-109622 [JP 2001109622 A]  
PUBLISHED: April 20, 2001 (20010420)  
INVENTOR(s): SAKURABA NORIKO  
APPLICANT(s): TOSHIBA CORP  
APPL. NO.: 11-287108 [JP 99287108]  
FILED: October 07, 1999 (19991007)  
INTL CLASS: G06F-009/06

#### ABSTRACT

PROBLEM TO BE SOLVED: To improve accuracy in the workload estimation of a project.

SOLUTION: Concerning the workload estimation supporting device for supporting the estimation of **workload required** for executing a project, this **device** is provided with a workload estimate information input means 3 for inputting **workload** estimate information **required** for estimating the **workload** of the project, workload estimating means 6 for estimating the workload on the basis of the inputted workload estimate information, workload result information input means 8 for inputting the workload result information of respective projects, error analytic means 14 for analyzing an error between the workload estimate information estimated by the workload estimating means and the workload result information inputted by the workload result information input means, and error cause input means 16 for inputting an error cause estimated to the error analyzed result of this error analytic means.

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17/5/3 (Item 3 from file: 347)  
DIALOG(R)File 347:JAPIO  
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06649097 \*\*Image available\*\*  
METHOD AND DEVICE FOR INSPECTION

PUB. NO.: 2000-234915 [JP 2000234915 A]  
PUBLISHED: August 29, 2000 (20000829)  
INVENTOR(s): INAGAKI DAISUKE  
SAEKI KAZUTO  
IKUSHIMA YASUHISA  
APPLICANT(s): KEYENCE CORP  
APPL. NO.: 11-034909 [JP 9934909]  
FILED: February 12, 1999 (19990212)  
INTL CLASS: G01B-011/24

#### ABSTRACT

PROBLEM TO BE SOLVED: To provide an inspection method and inspection device wherein the **workload** and the time **necessary** for forming a reference image to be compared with an image picked up from an object to be inspected can be reduced, and productivity is improved.

SOLUTION: An image is picked up with an image-sensing device, and a digital image signal of an obtained reference object to be inspected is displayed as a display image on a display unit (S102). When adjustment of display position of the display image displayed on the display **device** is **necessary** (S105: Y), address conversion processing that the display image is rotated and/or moved in parallel is performed (S106). The image of the inspection reference object is so converted that the direction of a line passing two points is longitudinal or transversal, e.g. when a distance

between the two points inspected. The display image whose display position is adjusted is stored as a reference image (S108). The stored reference image is read when the image is compared with an image picked up from an object to be inspected.

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17/5/13 (Item 7 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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013178353 \*\*Image available\*\*  
WPI Acc No: 2000-350226/200030  
XRPX Acc No: N00-262430

**Acceptability testing for capacity planning of data storage system,  
involves evaluating at least one performance requirement model for each  
workload in a group**

Patent Assignee: HEWLETT-PACKARD CO (HEWP )  
Inventor: BOROWSKY E L; GOLDING R A; MERCHANT A A; SPASOJEVIC M; WILKES J;  
GOLDING R; MERCHANT A

Number of Countries: 020 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200022530	A1	20000420	WO 99US23804	A	19991013	200030 B
US 6119174	A	20000912	US 98172114	A	19981013	200046

Priority Applications (No Type Date): US 99379204 A 19990821; US 98172114 A 19981013

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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WO 200022530	A1	E	33	G06F-011/34	
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Designated States (National): JP

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU  
MC NL PT SE

US 6119174	A			G06F-013/10	
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Abstract (Basic): WO 200022530 A1

NOVELTY - Performance **requirement** model for each **workload** in a group are determined. Each model is an increasing function of request rate which is being approximated by distribution process describing ON/OFF behavior of given workload. A computer then evaluates at least one model in the group to determine whether data storage **device** satisfies the performance **requirement**.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for apparatus for testing data storage devices.

USE - For testing acceptability for capacity planning of data storage system of a large enterprise.

ADVANTAGE - Provides quick and efficient test for determining whether a performance requirement is satisfied by a data storage device that is assigned a group of workloads.

DESCRIPTION OF DRAWING(S) - The figure shows flowchart of a method for determining whether performance requirement is satisfied for a given group of workload assigned to the data storage device.

pp; 33 DwgNo 4/9

Title Terms: ACCEPT; TEST; CAPACITY; PLAN; DATA; STORAGE; SYSTEM; EVALUATE;  
ONE; PERFORMANCE; REQUIRE; MODEL; GROUP

Derwent Class: T01

International Patent Class (Main): G06F-011/34; G06F-013/10

International Patent Class (Additional): G06F-011/30; G06F-017/30;  
G06F-017/60

File Segment: EPI

17/5/18 (Item 12 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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012253453    \*\*Image available\*\*  
WPI Acc No: 1999-059560/199905  
XRPX Acc No: N99-044377

**Processing capability modelling method in multiuser computer system - involves determining utilization percentage of CPU of modelled computer system based on its calculated busy time**

Patent Assignee: ORACLE CORP (ORAC-N)

Inventor: DELUCA S A; RIST A

Number of Countries: 001    Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5848270	A	19981208	US 96692077	A	19960802	199905 B

Priority Applications (No Type Date): US 96692077 A 19960802

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 5848270	A	15	G06F-009/00	

Abstract (Basic): US 5848270 A

The method involves calculating busy time for a CPU (104) of a modelled computer system (100) subjected to a selected **work load** by calculating time **required** for the CPU to perform total number of reads and writes necessary to perform a transaction separately. The computed time for the CPU to perform the total number of reads and writes for transaction is thus calculated and added. Then utilization percentage for the CPU subjected to the selected work load is determined based on the calculated busy time.

Then, the modelled computer system equipped with this CPU is compared with another existing computer system having another CPU. The utilization percentage of CPU of the modelled computer system, is scaled to provide utilization percentage of the CPU of the existing computer system. Then, it is determined whether utilization percentage of the existing computer system when subjected to selected work load, is less than selected limit. Based on the determined utilization percentage, it is determined whether the CPU of the modelled computer system is able to operate satisfactorily when subjected to work load.

USE - For sizing computer system such as optical and mechanical computers.

ADVANTAGE - Indicates processor, memory and mass storage **requirement** for **computer system**, without **requiring** that **computer system** actually be constructed and tested. Avoids need for extensive consultant review of numerous currently operating server systems.

Dwg.1/4

Title Terms: PROCESS; CAPABLE; MODEL; METHOD; COMPUTER; SYSTEM; DETERMINE; PERCENTAGE; CPU; MODEL; COMPUTER; SYSTEM; BASED; CALCULATE; BUSY; TIME

Derwent Class: T01

International Patent Class (Main): G06F-009/00

File Segment: EPI

17/5/21    (Item 15 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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011492492    \*\*Image available\*\*

WPI Acc No: 1997-470405/199743

XRPX Acc No: N97-392533

**Computer-implemented capacity planning system for multiprocessor client-server computer environments - accepts workload parameters, e.g. number of users, disk storage required, average number of transactions per second per user, disk accesses per transaction and network bandwidth, and outputs report describing new system configuration**

Patent Assignee: NCR CORP (NATC )

Inventor: BHAT K V

Number of Countries: 001    Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
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US 5668995 A 19970916 S 94231538 A 19940422 1 43 B

Priority Applications (No Type Date): US 94231538 A 19940422

Patent Details:

Patent No	Kind	Lan	Pg	Main	IPC	Filing	Notes
US 5668995	A		8	G06F-015/00			

Abstract (Basic): US 5668995 A

The capacity planning system provides a correctly sized and configured computer **system** in response to user specified **requirements**. The user specified **requirements** comprise **workload** parameters. The generated output from the capacity planning generally comprises a recommended multiprocessor computer system, the number of processors needed in the **system**, the amount of memory **required**, and the configuration of a disk subsystem suitable for the system, including the number of disk drives, the size of each of the disk drives, and how they should be configured for best performance.

The generated output from the capacity planning system further comprises a list price, discounted price, maintenance costs and price/performance indicator for the identified computer system configuration. The capacity planning system can also generate output describing probable system configurations and pricing from other vendors to provide a competitive analysis for the user. The output also includes the average response time performance of the configured system for the specified workload, a summary of the resource utilization, and a bottleneck analysis.

Dwg.2,3/3

Title Terms: COMPUTER; IMPLEMENT; CAPACITY; PLAN; SYSTEM; MULTIPROCESSOR; CLIENT; SERVE; COMPUTER; ENVIRONMENT; ACCEPT; PARAMETER; NUMBER; USER; DISC; STORAGE; REQUIRE; AVERAGE; NUMBER; TRANSACTION; PER; SECOND; PER; USER; DISC; ACCESS; PER; TRANSACTION; NETWORK; BANDWIDTH; OUTPUT; REPORT; DESCRIBE; NEW; SYSTEM; CONFIGURATION

Derwent Class: T01; W01

International Patent Class (Main): G06F-015/00

File Segment: EPI

20/5/6 (Item 3 from file 350)  
DIALOG(R) File 350:Derwent WPIX  
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011179416 \*\*Image available\*\*  
WPI Acc No: 1997-157341/199715  
XRPX Acc No: N97-129875

**Computer data processing system with workload usage measuring capability**  
- running **cycle soaker task** when CPU is not performing workload task,  
**measuring total cycles run by CPU for task, and subtracting soaker**  
**cycles from total cycles**

Patent Assignee: SUN MICROSYSTEMS INC (SUNM ); FULLER B (FULL-I)

Inventor: FULLER B

Number of Countries: 007 Number of Patents: 005

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 762286	A1	19970312	EP 96650034	A	19960801	199715 B
JP 9134299	A	19970520	JP 96223727	A	19960826	199730
US 5797115	A	19980818	US 95518668	A	19950824	199840
EP 762286	B1	20000223	EP 96650034	A	19960801	200015
DE 69606745	E	20000330	DE 606745	A	19960801	200023
			EP 96650034	A	19960801	

Priority Applications (No Type Date): US 95518668 A 19950824

Cited Patents: 3.Jnl.Ref; DE 2558368; EP 320329; JP 4062644

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 762286	A1	E	12	G06F-011/34	
Designated States (Regional): DE FR GB IT NL					
EP 762286	B1	E		G06F-011/34	
Designated States (Regional): DE FR GB IT NL					
DE 69606745	E			G06F-011/34	Based on patent EP 762286
JP 9134299	A		12	G06F-011/34	
US 5797115	A			G06F-019/00	

Abstract (Basic): EP 762286 A

The method measures central processing unit (CPU) (3) usage **required** to execute a predetermined **workload** that includes system overhead usage of the CPU as well as direct usage of the **CPU**. The **CPU** is driven to **run** processing cycles to perform a workload task (22) or to perform a cycle soaker task. A cycle soaker task **runs** directly on the **CPU** and has no system overhead.

The cycle soaker task runs whenever there is no workload task ready to run. A monitor module measures (28) the total of all cycles run and soaker cycles **run** by the **CPU** from beginning to end of execution of the workload. CPU usage attributable to the workload is measured (30) by deducting the soaker cycles from the total of all cycles.

ADVANTAGE - Quick and efficient way to manage computing system.

Dwg.3/7

Title Terms: COMPUTER; DATA; PROCESS; SYSTEM; MEASURE; CAPABLE; RUN; CYCLE;  
SOAK; TASK; CPU; PERFORMANCE; TASK; MEASURE; TOTAL; CYCLE; RUN; CPU; TASK  
; SUBTRACT; SOAK; CYCLE; TOTAL; CYCLE

Derwent Class: T01

International Patent Class (Main): G06F-011/34; G06F-019/00

International Patent Class (Additional): G06F-009/46

File Segment: EPI

22/5/3 (Item 3 from file 347)  
DIALOG(R) File 347:JAPIO  
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05583641 \*\*Image available\*\*  
ESTIMATION DEVICE AND ESTIMATION METHOD

PUB. NO.: 09-198441 [JP 9198441 A]  
PUBLISHED: July 31, 1997 (19970731)  
INVENTOR(s): HAYAKAWA RUMI  
SAKURABA NORIKO  
APPLICANT(s): TOSHIBA CORP [000307] (A Japanese Company or Corporation), JP  
(Japan)  
APPL. NO.: 08-009424 [JP 969424]  
FILED: January 23, 1996 (19960123)  
INTL CLASS: [6] G06F-017/60 ; G06F-009/06  
JAPIO CLASS: 45.4 (INFORMATION PROCESSING -- Computer Applications); 45.1  
(INFORMATION PROCESSING -- Arithmetic Sequence Units)  
JAPIO KEYWORD: R139 (INFORMATION PROCESSING -- Word Processors)

#### ABSTRACT

PROBLEM TO BE SOLVED: To prepare an accurate required period estimation matching with concrete circumstances.

SOLUTION: Respective modules for constituting a software to be developed and module attributes are inputted from a module input means 1 and the respective processes of development and process attributes are inputted from a process input means 2. Constraints relating to the development are inputted from a constraint input means 3. A workload calculation means 5 calculates the workload of respective operation units based on the modules, the module attributes, the processes and the process attributes and a period calculation means 6 calculates the estimation of a **required** period based on the **workload**, a schedule and result data. **Required** personnels are allocated to the operation units and the schedule is prepared (scheduling is performed) by a scheduling means 3. A check means 7 checks whether or not the estimation is suited to the constraints such as a delivery date or the like. When they are not satisfied, the schedule is corrected by the rearrangement of the required personnels or the like.

22/5/9 (Item 9 from file: 347)  
DIALOG(R) File 347:JAPIO  
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03614555 \*\*Image available\*\*  
LOAD CONTROL SYSTEM

PUB. NO.: 03-277455 [JP 3277455 A]  
PUBLISHED: December 09, 1991 (19911209)  
INVENTOR(s): SHIKAMATA TOSHINOBU  
SASAKI SHIGEO  
APPLICANT(s): NEC CORP [000423] (A Japanese Company or Corporation), JP  
(Japan)  
APPL. NO.: 02-078040 [JP 9078040]  
FILED: March 27, 1990 (19900327)  
INTL CLASS: [5] B23Q-041/08; G06F-015/21  
JAPIO CLASS: 25.2 (MACHINE TOOLS -- Cutting & Grinding); 45.4 (INFORMATION PROCESSING -- Computer Applications)  
JOURNAL: Section: M, Section No. 1220, Vol. 16, No. 99, Pg. 162, March 11, 1992 (19920311)

#### ABSTRACT

PURPOSE: To suppress the dispersion caused by workers against load by making process load control into two-system control including worker elements from one-system control formed of only equipment elements.

CONSTITUTION: A work information storage part 2 is stored with **work load** detail information such as process **required** time constituted of

preparatory time, work time, automatic processing time and transport time on the basis of the process load detail information a process information storage part 1. A load computing part 3 computes the respective loads of a worker and equipment from the work load detail information in the work table of the work information storage part 2. The load computing part 3, for instance, computes the worker's load constituted of preparatory time, work time and transport time, and the equipment load constituted of preparatory time, work time and automatic processing time. A load piling part 4 piles the load computed by the load computing part 3 worker by worker and equipment by equipment, as well as a load piled information storage part 5 is stored with the load piled by the load piling part 4.

22/5/21 (Item 10 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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012525966 \*\*Image available\*\*  
WPI Acc No: 1999-332072/199928  
XRPX Acc No: N99-249707

**Estimating procedure of workload in designing using CAD - involves integrating information extracted from file for drawing and multiplying it with estimated number of sheets required for drawing**

Patent Assignee: HITACHI LTD (HITA )  
Number of Countries: 001 Number of Patents: 001  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 11120209	A	19990430	JP 97284893	A	19971017	199928 B

Priority Applications (No Type Date): JP 97284893 A 19971017

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
JP 11120209	A	4	G06F-017/50	

Abstract (Basic): JP 11120209 A

NOVELTY - **Workload required** for design completion is estimated with drawing size based on preset information on drawing stored in file (2). The stored information is extracted and integrated. Estimated number of sheets required for drawing, is multiplied with the integrated information for finalizing the **workload required** for design.

USE - For estimating workload in designing using CAD.

ADVANTAGE - Accuracy of progress prehension of design operation in design service using CAD system is raised. DESCRIPTION OF DRAWING(S) - The figure shows a CAD terminal with design progress control terminal. (2) File.

Dwg.1/4

Title Terms: ESTIMATE; PROCEDURE; DESIGN; CAD; INTEGRATE; INFORMATION; EXTRACT; FILE; DRAW; MULTIPLICATION; ESTIMATE; NUMBER; SHEET; REQUIRE; DRAW

Derwent Class: T01

International Patent Class (Main): G0

23/5/1 (Item 1 from file: 347)  
DIALOG(R)File 347:JAPIO  
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06562546 \*\*Image available\*\*  
ELECTRONIC EQUIPMENT

PUB. NO.: 2000-148279 [JP 2000148279 A]  
PUBLISHED: May 26, 2000 (20000526)  
INVENTOR(s): TANAKA HIDEKI  
APPLICANT(s): FUNAI ELECTRIC CO LTD  
FUNAI ELECTRIC ENG CO LTD  
APPL. NO.: 10-321838 [JP 98321838]  
FILED: November 12, 1998 (19981112)  
INTL CLASS: G06F-001/04; G06F-001/32; H03K-003/02

#### ABSTRACT

PROBLEM TO BE SOLVED: To reduce the power consumption of an electronic equipment without lowering its performance by controlling it so as to reduce the clock signal frequency received from a clock signal generation part when a clock control type operating part is kept in a halt state.

SOLUTION: A CPU 2 monitors based on a monitor **program** whether a clock control **type** operating part is kept in a halt state and then variably controls the clock frequency. In other words, the CPU 2 **functions** to reduce the clock frequency of the clock signal received from a PLL part 1b down to the lowest level from the initial level in a halt state excluding the **time** when the interrupt **requests** are given from a keyboard, an I/O such as a mouse 20, a LAN 15, a modem 17, a VIDEO 14, a voice equipment 16, etc., and also when a memory 13 is accessed. In such a constitution, the power consumption can be significantly reduced even when a personal computer, for example, is apparently operating as long as the corresponding I/O bus is temporarily set in a halt state in a period when a sheet of image data is transferred to a video chip and then the next data are transferred in an operation reproduction mode.

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23/5/3 (Item 3 from file: 347)  
DIALOG(R)File 347:JAPIO  
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05870993 \*\*Image available\*\*  
INFORMATION PROCESSING SYSTEM, DEVICE AND ITS CONTROLLING METHOD

PUB. NO.: 10-154093 [JP 10154093 A]  
PUBLISHED: June 09, 1998 (19980609)  
INVENTOR(s): KUROSAWA TAKAHIRO  
APPLICANT(s): CANON INC [000100] (A Japanese Company or Corporation), JP  
(Japan)  
APPL. NO.: 08-313489 [JP 96313489]  
FILED: November 25, 1996 (19961125)  
INTL CLASS: [6] G06F-012/00; G06F-012/00  
JAPIO CLASS: 45.2 (INFORMATION PROCESSING -- Memory Units)  
JAPIO KEYWORD: R131 (INFORMATION PROCESSING -- Microcomputers &  
Microprocessors); R138 (APPLIED ELECTRONICS -- Vertical  
Magnetic & Photomagnetic Recording)

#### ABSTRACT

PROBLEM TO BE SOLVED: To set an appropriate referring method of shared data for each information processor and to reduce data traffic between information **processors** in a cooperative **operation**.

SOLUTION: A reference **class** generation processing **program** 21 of each client sets a reference class which designates a data updation timing for data sharing. A reference request processing program 22 notifies a **server** of a set reference **class** together with a data **request**. A reference **request time** server side processing program 11 sends requested data to

a client and maintains a notified parameter. When data update occurs, an update **request** time server side processing program 12 and a data updating program 23 update data which is held by a client in a timing that is designated by a reference class.

23/5/4 (Item 4 from file: 347)  
DIALOG(R) File 347: JAPIO  
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05808360 \*\*Image available\*\*  
INFORMATION PROCESSOR

PUB. NO.: 10-091460 [JP 10091460 A]  
PUBLISHED: April 10, 1998 (19980410)  
INVENTOR(s): HASEGAWA TETSUO  
APPLICANT(s): TOSHIBA CORP [000307] (A Japanese Company or Corporation), JP  
(Japan)  
APPL. NO.: 08-243903 [JP 96243903]  
FILED: September 13, 1996 (19960913)  
INTL CLASS: [6] G06F-009/46  
JAPIO CLASS: 45.1 (INFORMATION PROCESSING -- Arithmetic Sequence Units)

#### ABSTRACT

PROBLEM TO BE SOLVED: To surely permit the whole intentions of an application task which is independently generated based on a different request to reflect on a controlled system by providing a means, etc., for executing a request processing based on the request synthesized by a synthesizing means.

SOLUTION: When a service processor is applied to a computer system for controlling the **running** of a train, the service **processors** 10-30 receive a **speed** as the **request** at every train and provide service for giving an output to the driving device of the corresponding train in order to execute transition to the received speed. Necessity degree in the respective devices 10-30 is within the range from 0 to 10, a value more than 8, especially is made to be for the application task of a protection system and a **time** limit, etc., for keeping the **request** is used as a keeping condition. The devices 10-30 at every train processes the opposite request from an application program which is independently programmed based on request specification from three **kinds** of different phases as the **application** task for giving the request to the respective devices 10-30.

23/5/12 (Item 2 from file: 350)  
DIALOG(R) File 350: Derwent WPIX  
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012998473 \*\*Image available\*\*  
WPI Acc No: 2000-170325/200015  
XRPX Acc No: N00-126582

#### Functional testing procedure of microprocessor

Patent Assignee: ADVANCED MICRO DEVICES INC (ADMI )  
Inventor: PARKER A; SKROVAN J C  
Number of Countries: 001 Number of Patents: 001  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 6016554	A	20000118	US 97901576	A	19970728	200015 B

Priority Applications (No Type Date): US 97901576 A 19970728

#### Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 6016554	A	16	G06F-011/00	

Abstract (Basic): US 6016554 A

NOVELTY - A microprocessor model (12) is coupled to memory model (16) via bus model (14). The **microprocessor** is adapted to perform an **activity** of interest that occurs for multiple clock cycles and to

respond to a control signal. The test result produced during the activity of the interest is compared with the expected result and the process is repeated until the activity of interest matches expected result.

**DETAILED DESCRIPTION** - The trigger event signal is applied to **microprocessor** prior to initiating performance of **activity** of interest. The trigger event signal is a predetermined combination of address, data and control signals. A control signal generator generates control signal predetermined **time** delay, after receiving the trigger **event** signal. The **time** delay is incremented and the process is repeated until the activity of interest matches expected result. The test engine (18) is coupled to microprocessor model (12) to initiate execution of testing program and to check proper **operation** of other elements of **microprocessor** of test **group** during execution of the testing **program**.

**USE** - For functional testing of microprocessor.

**ADVANTAGE** - As delay time is initialized to the number of system clock cycles, and is incremented during each time the **program group** is executed until the test result is matched, the microprocessor properly responds to a control signal by performing the target activity.

**DESCRIPTION OF DRAWING(S)** - The figure shows the block diagram of microprocessor test group.

Microprocessor model (12)

Bus model (14)

Memory model (16)

Test engine (18)

pp; 16 DwgNo 1/6

Title Terms: FUNCTION; TEST; PROCEDURE; MICROPROCESSOR

Derwent Class: T01

International Patent Class (Main): G06F-011/00

File Segment: EPI

23/5/16 (Item 6 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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011120266 \*\*Image available\*\*

WPI Acc No: 1997-098191/199709

Query **processing method esp. in real- time database management system**  
- **using data definition and data manipulation language and also database**  
**support group, database kernel group, database back-up group**  
**and database query group**

Patent Assignee: KOREA ELECTRONICS & TELECOM RES (KOEL-N); KOREA TELECOM CORP (KOTE-N)

Inventor: JANG S; KIM U; PARK Y; U W

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
KR 9503682	B1	19950417	KR 9124053	A	19911223	199709 B

Priority Applications (No Type Date): KR 9124053 A 19911223

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
KR 9503682	B1	1	H04M-003/22	

Abstract (Basic): KR 9503682 B

The method adds the required functions and registers the relations by using the data definition language. The method also adds the required data by using the data manipulation language. The distributed Database Management System (DBMS) consists of an Access Switching Subsystem (ASS) (1), an Interconnection Network Subsystem (INS) (2), and a Central Control Subsystem (CCS) (3).

The system also includes a DBM (4), a local database (5), an Access Switch Processor (ASP) (6), an Interconnection Network Processor (INP) (7), and a Number Translation **Processor** (NTP) (8). An **Operation** and Maintenance **Processor** (OMP) (9) and a Man Machine **Processor** (MMP)

(10) are also **used** .

ADVANTAGE - Does not increase system load.

Dwg.1/1

Title Terms: QUERY; PROCESS; METHOD; REAL-TIME; DATABASE; MANAGEMENT;  
SYSTEM; DATA; DEFINE; DATA; MANIPULATE; LANGUAGE; DATABASE; SUPPORT;  
GROUP; DATABASE; KERNEL; GROUP; DATABASE; BACK-UP; GROUP; DATABASE; QUERY  
; GROUP

Derwent Class: T01; W01

International Patent Class (Main): H04M-003/22

International Patent Class (Additional): H04M-003/42

File Segment: EPI

23/5/17 (Item 7 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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011120265

WPI Acc No: 1997-098190/199709

**Method of processing limit time of transaction execution in real-time database management system**

Patent Assignee: KOREA ELECTRONICS & TELECOM RES (KOEL-N); KOREA TELECOM  
CORP (KOTE-N)

Inventor: IM J; LEE K; U W

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
KR 9503681	B1	19950417	KR 9124052	A	19911223	199709 B

Priority Applications (No Type Date): KR 9124052 A 19911223

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
KR 9503681	B1		H04M-003/22	

Abstract (Basic): KR 9503681 B

The method that decreases the load of transaction manager and distributes the processing load to each program is provided. The processing of the execution limit **time** of the **transaction** is executed in the user interface transaction library that is linked with in the compile time of application program. The distributed DBMS consists of an ASS (Access Switching Subsystem) (1), an INS (Interconnection Network Subsystem) (2), a CCS (Central Control Subsystem) (3), DBMS (4), a local database (5), an ASP (Access Switching Processor) (6), an INP (Interconnection Network Processor) (7), a NTP (Number Translation **Processor**) (8), an OMP (**Operation** and Maintenance **Processor**) (9), a MMP (Man Machine Processor) (10), a DBSG (**Database** Supportion **Group**), a DBKG (**Database** Kernel **Group**), a DBBG (**Database** Backup **Group**), and a DBQG (**Database** Query **Group**).

Title Terms: METHOD; PROCESS; LIMIT; TIME; TRANSACTION; EXECUTE; REAL; TIME  
; DATABASE; MANAGEMENT; SYSTEM

Derwent Class: T01; W01

International Patent Class (Main): H04M-003/22

File Segment: EPI

24/5/1 (Item 1 from file 350)  
DIALOG(R) File 350:Derwent WPIX  
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007527495 \*\*Image available\*\*  
WPI Acc No: 1988-161427/198823  
XRPX Acc No: N88-123277

**Selective non-manual power controller for data processing equipment -  
accepts requests from command source to power on selected units and  
activates signals at power central interfaces**

Patent Assignee: UNISYS CORP (BURS )  
Inventor: ENGEL G L; GEORGESON P J; MUELLER D R; QUERNEMOEN J M ; TODD B C  
Number of Countries: 001 Number of Patents: 001  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 4747041	A	19880524	US 83508296	A	19830627	198823 B

Priority Applications (No Type Date): US 83508296 A 19830627

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 4747041	A	52		

Abstract (Basic): US 4747041 A

The controller apparatus provides the selective, non-manual control of power to computer equipment from a central location. It accomplishes this by automatically remotely powering on or off any one or more components of a system or systems. The controller apparatus accepts requests from a command source or sources to power off or sequentially power on those units selected by the command source.

These requests are interpreted by the controller apparatus which activates certain signals based upon this interpretation at its power control interfaces to the appropriate units. It also provides selective reporting via the system interface of the status (ON/OFF) of a referenced controlled units.

ADVANTAGE - Optimal control of conservation of electrical energy.  
2/21

Title Terms: SELECT; NON; MANUAL; POWER; CONTROL; DATA; PROCESS; EQUIPMENT;  
ACCEPT; REQUEST; COMMAND; SOURCE; POWER; SELECT; UNIT; ACTIVATE; SIGNAL;  
POWER; CENTRAL; INTERFACE

Derwent Class: T01

International Patent Class (Additional): G06F-009/00; G06F-015/56

File Segment: EPI

24/5/2 (Item 2 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
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003879667  
WPI Acc No: 1984-025205/198405  
XRPX Acc No: N84-018951

**Multi-processing system partitionable for different applications - has  
sub-system access including interface receiving partitioning requests  
from command sources, and its identification**

Patent Assignee: SPERRY CORP (SPER ); UNISYS CORP (BURS )  
Inventor: CAMPBELL R P; KRISCUNAS J G; QUERNEMOEN J M ; VOLTZ T R  
Number of Countries: 010 Number of Patents: 005  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 99244	A	19840125	EP 83303963	A	19830707	198405 B
US 4484270	A	19841120	US 82395936	A	19820707	198449
CA 1186414	A	19850430				198522
EP 99244	B	19901024				199043
DE 3381954	G	19901129				199049

Priority Applications (No Type Date): US 82395936 A 19820707

Cited Patents: A3...8709; No-SR.Pub; US 3253262; US 3641505; US 3812469; US  
3832695

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

EP 99244 A E 11

Designated States (Regional): CH DE FR GB IT LI NL SE

EP 99244 B

Designated States (Regional): CH DE FR GB IT LI NL SE

Abstract (Basic): EP 99244 A

The system comprises several sub-systems physically interconnected and is operable under software control. A sub-system access unit is provided to enable and disable the sub-system interconnections according to the configuration required. The access unit comprises a unit available interface and a system panel interface coupled to several sources of portioning command signals. A store for cabling information representing the types and physical interconnections of the components of the system is provided. It also stores the state of portioning of the system .

A data processor is arranged to receive a portioning change request from a portioning command source. It also produces, from information identifying the command source and from the stored information, a signal rejecting the portioning change request or switching signals for enabling and disabling the sub-system interconnections.

Title Terms: MULTI; PROCESS; SYSTEM; APPLY; SUB; SYSTEM; ACCESS; INTERFACE; RECEIVE; PARTITION; REQUEST; COMMAND; SOURCE; IDENTIFY

Derwent Class: T01; W01

International Patent Class (Additional): G06F-009/46; G06F-013/00; G06F-015/16

File Segment: EPI

File 348:EUROPEAN PATENTS 1983-2002/APR W02  
 (c) 2002 European Patent Office  
 File 349:PCT FULLTEXT 1983-2002/UB=20020418,UT=20020411  
 (c) 2002 WIPO/Univentio

Set	Items	Description
S1	1833	(SIZING OR SIZE OR SIZES) (5N) (SERVER? ? OR WEBSERVER? ? OR DATABASE? ? OR DBMS OR RDBMS)
S2	13425	(REQUIR? OR NEEDS OR NECESS? OR DEMAND? ? OR CONFIGUR?) (3N-) (SERVER? OR WEBSERVER? OR APPLICATION? OR PROGRAM? ? OR SOFTWARE OR DATABASE? OR DBMS OR RDBMS) (3N) (HARDWARE OR CLIENT? ? OR PC? ? OR COMPUTER? ? OR WORKSTATION? ?)
S3	10013	(REQUIR? OR NEEDS OR NECESS? OR DEMAND? ? OR CONFIGUR?) (3N-) (SERVER? OR WEBSERVER? OR APPLICATION? OR PROGRAM? ? OR SOFTWARE OR DATABASE? OR DBMS OR RDBMS) (3N) (TERMINAL? ? OR DEVICE? ? OR EQUIPMENT OR MACHINE? ? OR OPERATING)
S4	80400	(WORKLOAD? ? OR WORK()LOAD? ? OR PROCESSING OR PERFORMANCE OR CAPACITY) (5N) (REQUIR??? OR REQUIREMENT? ? OR NEEDS OR NECESSARY OR NECESSIT???? OR DEMAND? ?)
S5	116486	(TYPE? ? OR KIND? ? OR SORT? ? OR FAMILY OR CATEGORY OR CLASS OR BRAND? ? OR VARIET??? OR GROUP? ?) (5N) (SERVER? ? OR WEBSERVER? ? OR APPLICATION? ? OR PROGRAM? ? OR SOFTWARE? ? OR DATABASE? ? OR DBMS OR RDBMS)
S6	81668	(PROCESSOR? OR MICROPROCESSOR? OR PROCESSING()UNIT OR CPU - OR MPU) (5N) (UTILIZ? OR UTILIS? OR USE? ? OR ACTIVE OR BUSY OR WORKING OR OPERAT??? OR OPERATION? ? OR FUNCTION? ? OR FUNCTIONING OR RUN???? OR ACTIVE OR ACTIVIT???)
S7	6941	(PROCESSOR? OR MICROPROCESSOR? OR PROCESSING()UNIT OR CPU - OR MPU) (5N) (IDLE? ? OR IDLING OR INACTIV? OR INOPERA? OR REST? OR WAIT? OR LATENC??? OR LATENT)
S8	89823	(TRANSACTION? ? OR ACTIVIT??? OR PROCESSES OR ACTION? ? OR EVENT? ? OR JOB? ? OR TASK? ? OR REQUEST? ? OR QUERY OR QUERIES) (5N) (RATE OR SPEED OR TIME OR SECOND? ? OR MINUTE? ?) OR TPS
S9	153	CAPACITY()PLANNING
S10	46	SIZING(5N) (SERVER? ? OR WEBSERVER? ? OR DATABASE? ? OR DBMS OR RDBMS)
S11	65	S9:S10(S) (S4:S8 OR BENCHMARK? ?) OR ((S9:S10)/AB AND (S4:S8 OR BENCHMARK? ?)/AB)
S12	47	S11 AND IC=G06F
S13	331	(WORKLOAD? ? OR WORK()LOAD? ?) (5N) (REQUIR??? OR REQUIREMENT? ? OR NEEDS OR NECESSARY OR NECESSIT???? OR DEMAND? ?)
S14	2	S1(S)S13 OR (S1/AB AND S13/AB)
S15	206	S5(S)S6:S7(S)S8 OR (S5/AB AND (S6:S7)/AB AND S8/AB)
S16	21	S1(S)S5(S)S6:S7(S)S8 OR (S1/AB AND S5/AB AND (S6:S7)/AB AND S8/AB)
S17	1237	S2:S3(S)S4
S18	3148	S2:S3(S)S5:S8
S19	5	S2:S3(S)S13 OR ((S2:S3)/AB AND S13/AB)
S20	98674	(REQUIR??? OR REQUIREMENT? ? OR NEEDS OR NECESSARY OR NECESSIT???? OR DEMAND? ?) (5N) (SERVER? ? OR WEBSERVER? ? OR APPLICATION? ? OR PROGRAM? ? OR SOFTWARE? ? OR DATABASE? ? OR DBMS OR RDBMS)
S21	232370	(REQUIR??? OR REQUIREMENT? ? OR NEEDS OR NECESSARY OR NECESSIT???? OR DEMAND? ?) (5N) (HARDWARE OR CLIENT? ? OR PC? ? OR COMPUTER? ? OR SYSTEM? ? OR WORKSTATION? ? OR TERMINAL? ? OR DEVICE? ? OR EQUIPMENT OR MACHINE? ? OR OPERATING)
S22	76	S13(S)S20:S21 OR (S13/AB AND (S20:S21)/AB)
S23	37	(S19 OR S22) AND IC=G06F
S24	62	S2:S3(S)S5(S)S6:S7(S)S8 OR ((S2:S3)/AB AND S5/AB AND (S6:S7)/AB AND S8/AB)
S25	46	S24 AND IC=G06F
S26	638	(S20:S21)/AB AND (S5:S8)/AB
S27	75	(S2:S3)/AB AND (S5:S8)/AB
S28	42	S27 AND IC=G06F
S29	61	S4(S)S5(S)S6:S7(S)S8 OR (S4/AB AND S5/AB AND (S6:S7)/AB AND S8/AB)
S30	44	S29 AND IC=G06F

S31 5 S4/TI,AB AND S5(S)S6:S7(S)S8 AND IC=G06F  
S32 33 S13(S)S5:S8 OR (S13/AB AND (S5:S8)/AB)  
S33 3 S13/AB AND S5:S8  
S34 1 AU="QUERNEMOEN JOHN MICHAEL"

.12/5,K/3 (Item 3 from e: 348)  
DIALOG(R) File 348:EUROPEAN PATENTS  
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01305095

**Performance monitoring in distributed systems**  
**Leistungsuberwachung in verteilten Systemen**  
**Contrôle de performance dans des systemes distribues**  
PATENT ASSIGNEE:

Agilent Technologies, Inc., (2885686), 395 Page Mill Road, Palo Alto, CA  
94306, (US), (Applicant designated States: all)

INVENTOR:

Burch, Jefferson B., 3510 La Mata Way, Palo Alto, California 94306, (US)

LEGAL REPRESENTATIVE:

Powell, Stephen David et al (52311), WILLIAMS, POWELL & ASSOCIATES 4 St  
Paul's Churchyard, London EC4M 8AY, (GB)

PATENT (CC, No, Kind, Date): EP 1117045 A2 010718 (Basic)

APPLICATION (CC, No, Date): EP 2001300068 010105;

PRIORITY (CC, No, Date): US 480041 000110

DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;  
LU; MC; NL; PT; SE; TR

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

INTERNATIONAL PATENT CLASS: **G06F-011/34**

ABSTRACT EP 1117045 A2

A distributed system that provides performance monitoring capability across multiple nodes 20-24 of a distributed application includes a set of nodes 20-24 that communicate via a network. A distributed application is performed by a set of cooperating node applications 50-54 executing in the nodes 20-24. The distributed system implements techniques for generating time-stamp records for each of a set of significant events associated with one or more of the node applications 50-54. The time-stamp records provides a synchronized time base across the nodes 20-24 for the significant events thereby enabling temporal ordering of the significant events.

ABSTRACT WORD COUNT: 97

NOTE:

Figure number on first page: 1

LEGAL STATUS (Type, Pub Date, Kind, Text):

Application:	010718 A2	Published application without search report
Assignee:	010801 A2	Transfer of rights to new applicant: Agilent Technologies Inc. (2929951) a Delaware Corporation 395 Page Mill Road Palo Alto, CA 94303 US
Assignee:	010808 A2	Transfer of rights to new applicant: Agilent Technologies Inc. a Delaware Corporation (2929950) 395 Page Mill Road Palo Alto, CA 94303 US
Assignee:	011010 A2	Transfer of rights to new applicant: Agilent Technologies, Inc. (a Delaware corporation) (2885689) 395 Page Mill Road Palo Alto, CA 94303 US

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200129	504
SPEC A	(English)	200129	4253
Total word count - document A			4757
Total word count - document B			0
Total word count - documents A + B			4757

INTERNATIONAL PATENT CLASS: **G06F-011/34**

...SPECIFICATION as well as events to return the appropriate information to the requesting web browser.

A capability to record the timing of events in a distributed  
**application** may be useful for a **variety** of system management tasks

such as performance monitoring, diagnosis, and capacity planning. For example, a record of the timing of events may be useful for identifying bottlenecks in a distributed application that hinder overall performance. Unfortunately, prior...

12/5,K/4 (Item 4 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
(c) 2002 European Patent Office. All rts. reserv.

00665733

**Optimization of manufacturing resource planning.**

**Optimierung der Betriebsmittelplanung.**

**Optimisation de planification des ressources de fabrication.**

PATENT ASSIGNEE:

INTERNATIONAL BUSINESS MACHINES CORPORATION, (200125), Old Orchard Road,  
Armonk, N.Y. 10504, (US), (applicant designated states: DE;FR;GB)

INVENTOR:

Dietrich, Brenda L., 1946 Glen Rock Street, Yorktown Heights, New York  
10598, (US)

Wittrock, Robert J., Apt.5-3, Bridle Path, Ossining, New York 10562, (US)

LEGAL REPRESENTATIVE:

Schafer, Wolfgang, Dipl.-Ing. (62021), IBM Deutschland  
Informationssysteme GmbH Patentwesen und Urheberrecht, D-70548  
Stuttgart, (DE)

PATENT (CC, No, Kind, Date): EP 639815 A2 950222 (Basic)  
EP 639815 A3 950927

APPLICATION (CC, No, Date): EP 94112631 940812;

PRIORITY (CC, No, Date): US 108014 930816

DESIGNATED STATES: DE; FR; GB

INTERNATIONAL PATENT CLASS: G06F-017/60

ABSTRACT EP 639815 A2

A method for constrained material requirements planning, optimal resource allocation, and production planning provides for an optimization of a manufacturing process by designating the amounts of various manufactured products to be produced, which products include both end products as well as subassemblies to be employed in the manufacture of one or more of the end products. In order to accomplish the optimization, the method employs an objective function such as the maximization of income in a situation wherein there are limitations on the inventory of raw materials and tools to be employed in the manufacturing process. Data describing elemental steps in the manufacturing process for the production of each end product, as well as the quantity or demand for each end product which is to be supplied, are presented as a set of linear mathematical relationships in matrix form to be inserted in a computer which determines the optimum number of each end product in accordance with an LP optimization algorithm. The matrix contains bill of material data, and various constraints such as a constraint on the sum of products shipped and used as subassemblies, and constraints based on inventory, on available time for use of resources such as tools, and on inventory left over from an early production run for a later run. (see image in original document)

ABSTRACT WORD COUNT: 221

LEGAL STATUS (Type, Pub Date, Kind, Text):

Application: 950222 A2 Published application (Alwith Search Report  
;A2without Search Report)  
Examination: 950809 A2 Date of filing of request for examination:  
950612  
Search Report: 950927 A3 Separate publication of the European or  
International search report  
Withdrawal: 961009 A2 Date on which the European patent application  
was withdrawn: 960820  
\*Assignee: 970205 A2 Applicant (transfer of rights) (change):  
International Business Machines Corporation  
(200120) Old Orchard Road Armonk, N.Y. 10504  
(US) (applicant designated states: DE;FR;GB)

LANGUAGE (Publication, Process, Application): English; English; English  
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPAB95	3597
SPEC A	(English)	EPAB95	15573
Total word count - document A			19170
Total word count - document B			0
Total word count - documents A + B			19170

INTERNATIONAL PATENT CLASS: G06F-017/60

...SPECIFICATION final period, production and shipment schedule correspond to an allocation of resources that minimizes the value of the final inventory.

16. A method for material **requirements** planning, **capacity planning**, and production planning and resource allocation for manufacturing processes that include alternate means for producing products.

Specifically, in Step 1, data describing the demand, inventory...

...schedule and the production schedule are inserted to the MRP system, the CRP system, and the other manufacturing information system.

17. A method for material **requirements** planning, **capacity planning**, and production planning and resource allocation for manufacturing processes that include separation operations in which a single part number is transformed into one or more...

12/5,K/6 (Item 6 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
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00365793

Measuring utilization of processor shared by multiple system control programs.

Messung der Verwendung eines von mehrfachen Systemsteuerprogrammen anteilig genutzten Prozessors.

Mesure de l'utilisation de processeur partage par plusieurs programmes de commande de systeme.

PATENT ASSIGNEE:

AMDAHL CORPORATION, (628801), 1250 East Arques Avenue, Sunnyvale  
California 94088-3470, (US), (applicant designated states: DE;FR;GB)

INVENTOR:

Ellsworth, Robert S., 1626 198th Place, S.E. Issaquah Washington 98027,  
(US)

LEGAL REPRESENTATIVE:

Crawford, Andrew Birkby et al (29761), A.A. THORNTON & CO. Northumberland  
House 303-306 High Holborn, London WC1V 7LE, (GB)

PATENT (CC, No, Kind, Date): EP 346009 A2 891213 (Basic)  
EP 346009 A3 910327

APPLICATION (CC, No, Date): EP 89305541 890601;

PRIORITY (CC, No, Date): US 205301 880610

DESIGNATED STATES: DE; FR; GB

INTERNATIONAL PATENT CLASS: G06F-011/34

CITED REFERENCES (EP A):

MINI-MICRO SYSTEMS, vol. XXII, no. 2, February 1989, pages 72-76; D.

PLAUGER: "Timing is everything"

IBM TECHNICAL DISCLOSURE BULLETIN, vol. 14, no. 3, August 1971, pages  
942-945; R. BAIRD: "Application performance evaluator"

ELECTRONICS, vol. 58, no. 26, July 1985, pages 28,30; L. WALLER: "Dual  
operating systems: a compromise in quest for a standard"

COMPUTER DESIGN, vol. 23, no. 3, March 1984, pages 30,32; Anonymous:  
"Multiple operating systems coexist on multiprocessor system"

COMPUTER, vol. 8, no. 11, November 1975, pages 51-61; G.J. NUTT:

"Tutorial: Computer system monitors";

ABSTRACT EP 346009 A2

In a computer system wherein control of a processor is time multiplexed

among more than one system control program, the utilization by a system control program of the processor during a predetermined time interval is determined by accumulating processor idle time for said system control program during said time interval, adjusting the processor idle time accumulated for said system control program by time periods wherein said system control program does not have control of the processor; and subtracting said real idle time from said interval time to obtain CPU busy time.

ABSTRACT WORD COUNT: 95

LEGAL STATUS (Type, Pub Date, Kind, Text):

Application: 891213 A2 Published application (A1with Search Report  
;A2without Search Report)  
Search Report: 910327 A3 Separate publication of the European or  
International search report  
Examination: 910828 A2 Date of filing of request for examination:  
910702  
Examination: 931103 A2 Date of despatch of first examination report:  
930916  
Withdrawal: 950705 A2 Date on which the European patent application  
was deemed to be withdrawn: 950103

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPABF1	942
SPEC A	(English)	EPABF1	2283
Total word count - document A			3225
Total word count - document B			0
Total word count - documents A + B			3225

INTERNATIONAL PATENT CLASS: G06F-011/34

...SPECIFICATION its own domain, and run a production system in one domain while developing and testing a new application in another domain.

To tune and provide **capacity planning** for computer system, a knowledge of its **CPU utilization** becomes important.

**CPU utilization** is usually measured in terms of its busy time. In conventional SCPs such as the VM/370 and MVS, CPU busy time is measured by...

12/5,K/8 (Item 8 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

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00240361

**Data base processor and its method of operation.**

**Datenbankprozessor und Betriebsverfahren dafur.**

**Processeur d'une base de donnees et son procede de mise en oeuvre.**

PATENT ASSIGNEE:

International Business Machines Corporation, (200120), Old Orchard Road,  
Armonk, N.Y. 10504, (US), (applicant designated states: DE;FR;GB;IT)

INVENTOR:

Dahlin, Par Arne, Skoldalsvagen 15C, S-191 51 Sollentuna, (SE)  
Dahlen, Bjorn Gustaf, Vesslevagen 14, S-181 09 Lidingo, (SE)  
Redziejowski, Roman Richard, Ceremonimastarvagen 10, S-181 40 Lidingo,  
(SE)

Sandin, Henrik Emanuel, Boholmsstigen 2, S-181 46 Lidingo, (SE)

LEGAL REPRESENTATIVE:

Johansson, Lars E. et al (23225), IBM Svenska AB Intellectual Property  
Department 4-01, S-163 92 Stockholm, (SE)

PATENT (CC, No, Kind, Date): EP 244625 A1 871111 (Basic)  
EP 244625 B1 920129

APPLICATION (CC, No, Date): EP 87104572 870327;

PRIORITY (CC, No, Date): SE 861973 860429

DESIGNATED STATES: DE; FR; GB; IT

INTERNATIONAL PATENT CLASS: G06F-013/14 ; G06F-015/16 ; G06F-015/40

CITED PATENTS (EP A): US 3889237 A; US 4044337 A; US 4078254 A

ABSTRACT EP 244625 A1

In a data processing system a data base processor includes data base means (32) storing a plurality of tables and a data base manager (31) comprising a command router (34) and a plurality of command processors (80-92). Select, Copy, Create and Fit command processors (85,88,89,90) are used to select a portion of a stored source table, copy it into a target table, create new rows and fill them with new data. The source table and the target table can be compared by presenting them as a view on a user terminal. The target table may be located in the same data base as the source table or in an auxiliary data base connectable and disconnectable to and from the main data base. A production control dialog (70) is used for data source and data base identification and modification purpose.

The data base processor is preferably used as a Service Level Reporter (SLR) including a main data base for actual data and an auxiliary data base for forecasting data.

ABSTRACT WORD COUNT: 172

LEGAL STATUS (Type, Pub Date, Kind, Text):

Application: 871111 A1 Published application (A1with Search Report  
;A2without Search Report)  
Examination: 880420 A1 Date of filing of request for examination:  
880224  
Change: 880727 A1 Representative (change)  
Examination: 890830 A1 Date of despatch of first examination report:  
890713  
Change: 900307 A1 Representative (change)  
Grant: 920129 B1 Granted patent  
Oppn None: 930120 B1 No opposition filed

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	EPBBF1	1070
CLAIMS B	(German)	EPBBF1	920
CLAIMS B	(French)	EPBBF1	1382
SPEC B	(English)	EPBBF1	6441
Total word count - document A			0
Total word count - document B			9813
Total word count - documents A + B			9813

INTERNATIONAL PATENT CLASS: G06F-013/14 ...  
... G06F-015/16 ...

... G06F-015/40

...SPECIFICATION the system indicating response times and the quantity of the service provided by various departments or other groupings. Reports can also be provided for various **processors**, channels and **device utilizations** or they can disclose information useful for **capacity planning** or accounting etc. Reports can further be provided on the availability of VTAM network resources, such as application programs, control units and communication lines.

All...

...the SLR data base manager 31 is invoked from batch 12 or TSO 8 as indicated by lines 21 and 20 to the main line **module** 33 in DBM **31**.

The main line load module 33 is **used** to initialize main storage areas, service routines and the SLR data base 32.

According to the present invention the SLR data base 32 comprises a plurality...time range

- forecasting algorithm
- options (e.g. replace/noreplace)
- where to store the forecast (data base name, table name, new key column values)

Several tasks **require** a forecasting function:

Usage and **Performance** Planning and Follow-up

**Capacity** Planning

Accounting

The relations between the tasks and the SLR forecasting function is described below.

Usage and Performance Planning and Follow-up: By creating forecasts for ...

...column could be excluded), and the data column TOT-CPU. ADDRSTAT -Address Space Load Statistics, is a summary table containing address space statistics summarized by **systems** and projects. **This** table could then be filled with forecast data by means of SLR forecasting, and then, as data is collected into the ADDRSTAT table, reports with the difference between the forecasted and actual CPU time usage can be generated.

#### **Capacity Planning :**

The forecasting function can be used to extrapolate the past usage of any resource measured by SLR into the future planning period. The user will...

...establishing a price per unit  
measuring usage  
computing charges  
billing users

The SLR Forecasting function will be implemented through the COPY, CREATE, and FIT commands.

To be able to run the **Forecasting** application, the user must **have two** data bases, one Forecasting data base 41 (ddname MAINFILE, update mode), and a Base data base 42 containing the normal SLR measurement data (user-defined...

12/5,K/11 (Item 3 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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00859421 \*\*Image available\*\*

**SYSTEM, METHOD, AND ARTICLE OF MANUFACTURE FOR AN AUTOMATED SCRIPTING SOLUTION FOR ENTERPRISE TESTING**  
**SYSTEME, PROCEDE ET PRODUIT PERMETTANT UNE SOLUTION DE SCRIPT INFORMATISE POUR MISE A L'ESSAI EN ENTREPRISE**

Patent Applicant/Assignee:

ACCENTURE LLP, 1661 Page Mill Road, Palo Alto, CA 94304, US, US  
(Residence), US (Nationality)

Inventor(s):

HASWELL John Jeffrey, 13231 Wrenn House Lane, Herndon, VA 20171, US,  
YOUNG Robert J, 6R Sackville St. Apt. 2, Charleston, MA 02129, US,  
SCHRAMM Kevin, 1 Longpoint Lane, Rose Valley, PA 19063, US,

Legal Representative:

HICKMAN Paul L (agent), Oppenheimer Wolff & Donnelly, LLP, P.O. Box 52037, Palo Alto, CA 94303, US,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200193043 A1 20011206 (WO 0193043)

Application: WO 2001US9610 20010323 (PCT/WO US0109610)

Priority Application: US 2000535586 20000327; US 2000536214 20000327; US 2000536879 20000327

Designated States: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CO CR CU CZ DE

DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK

LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL

TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW

(EA) AM AZ BY KG KZ MD RU TJ TM

Main International Patent Class: **G06F-011/36**

Publication Language: English

Filing Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 77236

#### English Abstract

A system, method and article of manufacture are provided for affording an automated scripting solution for enterprise testing. First, a table-driven automated scripting architecture is provided. Then, a test script is developed using the table-driven automated scripting architecture. A synchronized execution of the test script is then performed. Finally, metrics of the synchronized execution of the test script are outputted.

#### French Abstract

La presente invention concerne un systeme, un procede et un produit permettant une solution de script informatise pour mise a l'essai en entreprise. Une architecture de script informatise gere par table est d'abord pourvue, puis un script d'essai est developpe, par utilisation de ladite architecture de script informatise gere par table. Une execution synchronisee dudit script d'essai est alors realisee et la metrologie de l'execution synchronisee dudit script d'essai est finalement produite.

#### Legal Status (Type, Date, Text)

Publication 20011206 A1 With international search report.

Publication 20011206 A1 Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

Examination 20020207 Request for preliminary examination prior to end of 19th month from priority date

Main International Patent Class: G06F-011/36

Fulltext Availability:

Detailed Description

#### Detailed Description

... data from the event/data generation, event processing, and repositories components and then send data to the presentation or repositories components. Management applications tools include **capacity planning** tools, performance management tools, ficense management tools, remote management tools, systems monitoring tools, scheduling tools, help desk tools, etc.. Some Ente,rprise Management tools even...

...management operations framework. As Corporate Internets and Extranets implement Web based software products to sell and advertise business services, corresponding administrative, security, event notification and **performance requirements** must be performed similarly for the companies web based system. The two critical path issues are security management and network management.

Security Management

Security Management...

12/5,K/20 (Item 12 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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00793243 \*\*Image available\*\*

ORGANIZATION OF INFORMATION TECHNOLOGY FUNCTIONS

ORGANISATION DE FONCTIONS DE TECHNOLOGIE DE L'INFORMATION

Patent Applicant/Assignee:

ANDERSEN CONSULTING L L P, 100 South Wacker Drive, Chicago, IL 60603, US,  
US (Residence), US (Nationality)

Inventor(s):

DOVE Shari L, 21336 Williamsburg Court, Kildeer, IL 60047, US,  
EDWARDS John R, 3482 Montreal Way, Tucker, GA 30084, US,  
FLYNN Margaret M, 3942 N. Paulina Street, Chicago, IL 60613-2518, US,  
GHOSH Nirmalya, 5000 Wright Terrace, Skokie, IL 60077, US,  
PITT Robert C, 20 St. Phillips Road, London E8 3BP, GB,  
ROEDERSHEIMER Jeffrey, 2900 N. Burling Street, Chicago, IL 60657, US,  
RYAN Hugh W, 17075 Yearling Lane, Wadsworth, IL 60083, US,  
SIGMUND Larry A, 443 Sunset Drive, Crystal Lake, IL 60014, US,

SMITH Cathern M, 1416 W. Rose #1, Chicago, IL 60657, US  
Legal Representative:  
RICHARDS Marc V (agent), Brinks Hofer Gilson & Lione, P.O. Box 10087,  
Chicago, IL 60610, US,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200125877 A2-A3 20010412 (WO 0125877)  
Application: WO 2000US27857 20001006 (PCT/WO US0027857)  
Priority Application: US 99158259 19991006

Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ  
DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ  
LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG  
SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW  
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE  
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG  
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW  
(EA) AM AZ BY KG KZ MD RU TJ TM

Main International Patent Class: G06F-017/60

International Patent Class: G06F-019/00

Publication Language: English

Filing Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 43417

English Abstract

The invention concerns a framework for information technology within a modern enterprise. The framework contains the functions required to effectively support a modern enterprise including customer service (10), service integration (20), capability development (40), change administration (50), strategy and architecture planning (60), general management and administration (70), human performance management (80), governance and strategic relationships (90). The invention discloses how the several functions interact to form a structure that can manage data and information using computer technology in modern enterprises including governmental and non-governmental organizations, and commercial enterprises.

French Abstract

L'invention concerne une structure pour la technologie de l'information au sein d'une entreprise moderne. L'organisation contient les fonctions necessaires a assister une entreprise de maniere efficace du point de vue de la technologie de l'information. L'invention se rapporte a la maniere dont les differentes parties interagissent pour former une structure capable de gerer des donnees et des informations dans des entreprises modernes, l'entreprise etant une organisation gouvernementale, une organisation non-gouvernementale, ou une entreprise commerciale.

Legal Status (Type, Date, Text)

Publication 20010412 A2 Without international search report and to be republished upon receipt of that report.  
Search Rpt 20010907 Late publication of international search report  
Republication 20010907 A3 With international search report.  
Examination 20011018 Request for preliminary examination prior to end of 19th month from priority date

Main International Patent Class: G06F-017/60

International Patent Class: G06F-019/00

Fulltext Availability:

Detailed Description

Detailed Description

... planning defines the key business requirements and business drivers that will determine what information technology resources are needed for a specific application during a given time frame.

A group or task for resource data gathering collects the key data needed for the purpose of building a capacity model and performing

**capacity planning** . The information for data gathering comes from a variety of sources, both manual and automated. Historical, as well as current data, is gathered in order to understand resource utilization trends, identify peak process periods, and plan for future **processing demands** . One of the most important aspects of data gathering is accuracy.

I 0 The accuracy of the data directly impacts the accuracy of the capacity...

12/5,K/21 (Item 13 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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00793242 \*\*Image available\*\*

**METHOD AND ESTIMATOR FOR PROVIDING CAPACITY MODELING AND PLANNING  
TECHNIQUE ET ESTIMATEUR POUR LA MODELISATION ET LA PLANIFICATION DE LA  
CAPACITE**

Patent Applicant/Assignee:

ACCENTURE LLP, 1661 Page Mill Road, Palo Alto, CA 94304, US, US  
(Residence), US (Nationality)

Inventor(s):

BOND William C, 21325 North White Pine, Kildeer, IL 60047, US,

Legal Representative:

RICHARDS Marc V (agent), Brinks Hofer Gilson & Lione, P.O. Box 10087,  
Chicago, IL 60610, US,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200125876 A2-A3 20010412 (WO 0125876)

Application: WO 2000US27795 20001006 (PCT/WO US0027795)

Priority Application: US 99158259 19991006

Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ

DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ

LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG

SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW

(EA) AM AZ BY KG KZ MD RU TJ TM

Main International Patent Class: **G06F-017/60**

Publication Language: English

Filing Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 10591

**English Abstract**

A method for providing or building a capacity modeling and planning function in an information technology organization includes conducting the tasks involved in building the capacity modeling. A delivery phase includes capacity analysis stage 102, a capacity release design stage 104, a capacity release built and test stage (106), and a deployment stage (108). The project may have milestone including plan delivery approval (110), authorization to build and test (112) and authorization for deployment (114).

**French Abstract**

Cette invention concerne une technique permettant d'assurer ou de créer une fonction de modélisation et de planification de la capacité dans une organisation spécialisée dans les technologies de l'information, technique qui passe par l'exécution de tâches en rapport avec la mise en place de ladite fonction. Ces tâches consistent à ordonnancer, analyser, concevoir, tester et déployer la fonction de modélisation et de la planification de la capacité. Chacune de ces tâches se subdivise en éléments sous-jacents concernant les processus, l'organisation et la technologie.

Legal Status (Type, Date, Title)

Publication 20010412 A2 Without international search report and to be republished upon receipt of that report.

Examination 20010809 Request for preliminary examination prior to end of 19th month from priority date

Search Rpt 20010830 Late publication of international search report

Republication 20010830 A3 With international search report.

Main International Patent Class: G06F-017/60

Fulltext Availability:

Detailed Description

Detailed Description

... and requirement planning task defines key business requirements and business drivers to determine what IT resources are needed for a specific application during a given time frame.

The resource data gathering task collects key data for building a capacity model and performing capacity planning. The information for data gathering comes from a variety of sources, both manual and automated.

Historical and current data are gathered to understand resource utilization...and SUBSTITUTE SHEET (RULE 26) and systems may involve multiple organizations. This generally adds complexity to the systems.

Net-centric considerations include net centric data types, fat servers, thin clients, and push software distribution. Net-centric data types may increase from the introduction of net-centric technologies. Sites may contain images, audio and video clips, Java Applets or ActiveX controls, all of which must be part of traditional backup and restore plans and part of network capacity models. Storage and network capacity planning should allow for the increased size of these file types. Fat servers occur when file access is 10 granted to the broader Internet community. Performance degradation becomes an issue as large numbers of users download files...should be performed.

In thin client net-centric environments, there is a greater reliance on the server for storage of personal files. This will increase capacity requirements for servers and networks and should be considered when performing capacity planning.

Push software distribution presents new considerations to capacity planning processes. For example, average capacity requirements may decrease with push architectures because users no longer waste bandwidth polling for new software or content updates. However, peak capacity requirements may increase because updates are simultaneously pushed to all subscribers when they become available.

Figure 3 is a representation of the task package to survey...evaluation. The goals are to provide software selection criteria and to identify the potential vendors  
SUBSTITUTE SHEET (RULE 26)  
having the ability to satisfy key capacity planning requirements with their packaged software products.

If modeling software is required, the modeling approach selected dictates what the component options are. The modeling approach may be... responsibility for on-going capacity modeling and planning activity need a combination of business management and technology skills. Technology skills include in-depth knowledge of.

capacity planning and modeling concepts and techniques;

elements making up the environment (Servers, Clients, IDAS communications, etc.);  
all modeling tools used, and the configuration of the tools...

...and performance reporting;  
the capacity modeling and planning process and the SLA's in place;  
and  
business capability requirements and how they translate to application  
**requirements** and then into technology infrastructure **processing**  
volumes and system utilization.

In addition to technology skills, capacity modeling and planning  
personnel need common business administration and business management  
skills, such as the...processes 5550. This task package includes the  
following tasks: train  
5 capacity planning team 5551, complete data gathering procedures 5552,  
develop baseline model 5553, model **capacity** demand 5555, and prepare  
**capacity planning** document 5557. This task package designs and  
programs  
the capacity modeling & planning components that make up the base models,  
including extensions to reused and packaged...

...problems.

Once the base model has been tested, calibrated, and approved, the  
model's utilization projections are analyzed and resource configuration  
alternatives that satisfy the **capacity requirements** are developed.  
The ongoing **capacity** modeling and planning team as well as the key  
business users who will be involved in **capacity planning** in the  
future should be heavily involved in executing the product test. The cost  
of each viable alternative is determined. The benefits are documented.  
The...

12/5,K/22 (Item 14 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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00792496 \*\*Image available\*\*

**METHOD AND ESTIMATOR FOR PROVIDING STORAGE MANAGEMENT  
TECHNIQUE ET ESTIMATEUR POUR LA GESTION DES MOYENS DE STOCKAGE**

Patent Applicant/Assignee:

ANDERSEN CONSULTING L L P, 100 South Wacker Drive, Chicago, IL 60603, US,  
US (Residence), US (Nationality)

Inventor(s):

MILLES Daniel, 8216 Cloverdale Lane, Rockford, IL 61107, US,  
BOND William C, 21325 North White Pine, Kildeer, IL 60047, US,

Legal Representative:

RICHARDS Marc V (agent), Brinks Hofer Gilson & Lione, P.O. Box 10087,  
Chicago, IL 60610, US,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200126012 A1 20010412 (WO 0126012)

Application: WO 2000US27802 20001006 (PCT/WO US0027802)

Priority Application: US 99158259 19991006

Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ

DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ

LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG

SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW

(EA) AM AZ BY KG KZ MD RU TJ TM

Main International Patent Class: G06F-017/60

International Patent Class: G06F-019/00 ; G06F-017/30

Publication Language: English

Filing Language: English

Fulltext Availability:

Detailed Description

English Abstract

A system and method for storage management of an information technology environment provides the tasks involved in building the storage management function. The tasks include the planning (110), analyzing (3510), designing (2410), building (5550), testing (5590), and deploying (7170) of the storage management function. Each task includes process, organization, and technology infrastructure elements.

French Abstract

Cette invention concerne un systeme et une technique de gestion des moyens de stockage dans le secteur des technologies de l'information, qui passent par l'exécution de tâches en rapport avec la mise en place de ladite fonction. Ces tâches consistent à ordonnancer (110), analyser (3510), concevoir (2410), réaliser (5550), tester (5590) et déployer (7170) la fonction de gestion des moyens de stockage. Chacune de ces tâches se subdivise en éléments sous-jacents concernant les processus, l'organisation et la technologie.

Legal Status (Type, Date, Text)

Publication 20010412 A1 With international search report.

Publication 20010412 A1 Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

Examination 20010809 Request for preliminary examination prior to end of 19th month from priority date

Main International Patent Class: G06F-017/60

International Patent Class: G06F-019/00 ...

... G06F-017/30

Fulltext Availability:

Claims

Claim

... when

1 0 assessing best practice opportunities.

Task 2118: Refine Storage Management Architecture Requirements

This task includes defining storage management architecture requirements, and allocating the **requirements** across changes to human **performance**, business process, and technology. Preferably, the task 1 5 includes using the current assessment, constrains assessment, and best practice research to generate the requirements for...

...the changes according to organization

and performance improvements, process improvements, and technology improvements.

The task includes reviewing any existing service level agreements for storage management **performance** and operational **requirements**.

Functional

**requirements** define what the storage management system will do;

**performance requirements** define how well it will operate.

Task 2119: Update Storage Management Architecture Performance

Model

This task includes defining the metrics and ...and aligning the metrics and target service levels with performance provisions for the various storage management functions as outlines in SLA's.

The storage architecture **performance** model defines the overall design **requirements** for the storage management function.

Figure 2 depicts the stages in managing a project 1 00. After completing a planning phase 102, the project reaches...

...defining the skills needed for the critical tasks.

Skills may be required in all or many of the following areas:

1 . Systems Management/Administration and **Capacity Planning** ;

## 2 Operations Architecture

### 3 Resource Management;

#### 4 Task Planning.

Where the infrastructure is widely distributed or the data volumes are high, the storage management function...a portion of the production environment is used as the "test" application.

The task includes verifying that the interfaces to other operations components, such as **capacity planning** and system monitoring, are included in the test plan.

Task 5593: Execute Technology Infrastructure Product Test

1 0 This task includes verifying that the technology...apparatus for providing an estimate for building a storage management function in an information technology system. The method and apparatus generate a preliminary work estimate ( **time by task** ) and financial estimate (dollars by classification) based on input of a set of estimating factors that identify the scope and difficulty of key aspects to...

...underlying reasoning for a specific estimating factor.

Table 1

Estimating Factors Number Difficul Definition

# of Platforms 4 M A Platform is a unique combination of **serveri** , **type** and operating system

# of Service Level 4 M The number of service level agreements for Agreements which the organization has controlling responsibility of storage 3...

...of applications and databases

Databases with specific SM parameters. This may include both custom and packaged applications.

of storage 2 M A component is a **software program** , or a management **group** of **programs** which operate as an Components entity

# of storage 3 M A role is a set of related responsibilities management Roles which make up all or...

...21 0 by the

consultant, client, or both. An example of a worksheet is shown in Figs. 17a

and 17b. The default estimates of the **time** required for each **task** will

populate the worksheet, with **time** estimates based on the number factors and difficulty rating previously assigned to the estimating factors that correspond to each **task** . The amount of **time per task** is based on a predetermined **time** per unit required for the estimating factor multiplied by a factor corresponding to the level of difficulty. Each task listed on the worksheet is described...

...of this invention, e.g., any organization wishing to use a storage management system within an information technology system. In addition, there are many different **types** of computer systems, and computer **software** and hardware, that may be utilized in practicing the invention, and the invention is not limited to the examples given above. Accordingly, it is the...

12/5,K/25 (Item 17 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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00792408 \*\*Image available\*\*

DEVELOPMENT ARCHITECTURES FOR NETCENTRIC COMPUTING SYSTEMS

ARCHITECTURES DE DEVELOPPEMENT POUR SYSTEMES INFORMATIQUES A RESEAU

# CENTRALISE

## Patent Applicant/Assignee:

ACCENTURE LLP, 100 South Wacker Drive, Chicago, IL 60603, US, US  
(Residence), US (Nationality), (For all designated states except: US)

## Patent Applicant/Inventor:

ARVANITIS Yannis S, 532 W. 4th Street, Hinsdale, IL 60521, US, US  
(Residence), US (Nationality), (Designated only for: US)  
MESOY Tor, Storengvn. 63A, N-1368 Stabekk, NO, NO (Residence), NO  
(Nationality), (Designated only for: US)

## Legal Representative:

MCCONNELL Dean E (agent), Brinks Hofer Gilson & Lione, One Indiana  
Square, Suite 2425, Indianapolis, IN 46204, US,

## Patent and Priority Information (Country, Number, Date):

Patent: WO 200125909 A2-A3 20010412 (WO 0125909)  
Application: WO 2000US27123 20001002 (PCT/WO US0027123)  
Priority Application: US 99156962 19991001

## Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ

DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ  
LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG  
SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW  
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE  
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG  
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW  
(EA) AM AZ BY KG KZ MD RU TJ TM

## Main International Patent Class: G06F-009/44

## International Patent Class: G06F-009/46

## Publication Language: English

## Filing Language: English

## Fulltext Availability:

Detailed Description  
Claims

Fulltext Word Count: 12965

## English Abstract

A development architecture for a netcentric computing system that includes at least one server connected with a client. The server provides a common user interface between the server and the client. In addition, the server also provides at least one process management tool, at least one personal productivity tool, at least one quality management tool, at least one system building tool, at least one environment management tool, at least one program and project management tool, at least one personal productivity tool and at least one information management tool that is used in the development of the netcentric computing system.

## French Abstract

L'invention concerne une architecture de developpement destinee a un systeme informatique a reseau centralise, comprenant au moins un serveur relie a un client. Le serveur constitue une interface utilisateur courante entre le serveur et le client. De plus, le serveur offre egalement au moins un outil de gestion de procede, au moins un outil de productivite personnelle, au moins un outil de gestion de la qualite, au moins un outil de genie cognitif, au moins un outil de gestion de l'environnement, au moins un outil de gestion des programmes et des projets, au moins un outil de productivite personnelle et au moins un outil de gestion de l'information, utilises dans le developpement du systeme informatique a reseau centralise.

## Legal Status (Type, Date, Text)

Publication 20010412 A2 Without international search report and to be  
republished upon receipt of that report.  
Examination 20010628 Request for preliminary examination prior to end of  
19th month from priority date  
Search Rpt 20020110 Late publication of international search report  
Republication 20020110 A3 With international search report.

## Main International Patent Class: G06F-009/44

## International Patent Class: G06F-009/46

## Fulltext Availability:

## Detailed Description

Detailed Description  
... of files and applications.

The managing change tools 90 are used for making, tracking, and distributing changes to the development architecture 10. The most common **type** of change is upgrading of **software** (system, architecture, or application), but changes to hardware configurations and network configurations must also be supported. The service planning tools 92 support a **capacity planning** function for the development architecture 10. The environment needs to be

23

monitored and sufficient lead time allowed to support **required capacity** changes for shared disk space, server size (e.g., central processing unit size, memory, and number of users), network, and workstations (either the number of...

12/5,K/43 (Item 35 from file: 349)

DIALOG(R) File 349:PCT FULLTEXT

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00559157 \*\*Image available\*\*

**ACCEPTABILITY TESTING FOR CAPACITY PLANNING OF A DATA STORAGE SYSTEM**  
**ESSAI D'ACCEPTABILITE EN VUE DE LA PLANIFICATION DE LA CAPACITE D'UN**  
**SYSTEME DE STOCKAGE DE DONNEES**

Patent Applicant/Assignee:

HEWLETT-PACKARD COMPANY,

Inventor(s):

BOROWSKY Elizabeth Lynn,

GOLDING Richard,

MERCHANT Arif,

SPASOJEVIC Mirjana,

WILKES John,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200022530 A1 20000420 (WO 0022530)

Application: WO 99US23804 19991013 (PCT/WO US9923804)

Priority Application: US 98172114 19981013; US 99379204 19990821

Designated States: JP AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

Main International Patent Class: **G06F-011/34**

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 5214

### English Abstract

Data storage devices of an enterprise system are tested to determine whether the enterprise system is optimally configured. Each data storage device is tested to determine whether it can satisfy a performance requirement for an assigned group of  $n$  workloads. A group of  $n$  inequalities are generated, and only up to  $n$  of the inequalities may be evaluated to determine whether the device satisfies the performance requirement for the assigned group of workloads. The inequalities are based on a phased, correlated model of I/O activity.

### French Abstract

On effectue des essais sur des organes de stockage de donnees d'un systeme d'entreprise afin de determiner si ce dernier est configure de facon optimale. On procede a des essais sur chaque organe de stockage de donnees afin de determiner s'il satisfait aux exigences de performance pour un groupe donne de  $n$  charges de travail. On produit un groupe de  $n$  inegalites et on n'evalue au maximum que  $n$  inegalites afin de determiner si l'organe satisfait aux exigences de performance pour le groupe donne de charges de travail. Les inegalites sont etablies sur la base d'un modele phase et correle de l'activite d'entree/sortie.

Main International Patent Class: G06F-011/34  
Fulltext Availability:  
Detailed Description

Detailed Description

... DESCRIPTION OF THE INVENTION

As shown in the drawings for purposes of illustration, the invention is embodied in a method and apparatus for testing whether **performance requirements** are satisfied if a given group of workloads is assigned to a data storage device. The test is based on a phased, correlated model of ...

...the group of workloads assigned to the device. The testing is simple and it - 5 can be performed quickly, which makes it especially desirable for **capacity planning** of large enterprise systems.

In the paragraphs that follow, the testing will first be described in connection with a single data storage device. Then, the...

12/5,K/44 (Item 36 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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00551294 \*\*Image available\*\*

**HARDWARE/SOFTWARE MANAGEMENT, PURCHASING AND OPTIMIZATION SYSTEM  
SYSTEME DE GESTION, D'ACHAT ET D'OPTIMISATION DE MATERIEL/LOGICIEL**

Patent Applicant/Assignee:

ISOGON CORPORATION,  
BARRITZ Robert,

Inventor(s):

BARRITZ Robert,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200014667 A1 20000316 (WO 0014667)

Application: WO 99US20168 19990902 (PCT/WO US9920168)

Priority Application: US 9899629 19980908

Designated States: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES  
FI GB GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV  
MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG  
US UZ VN YU ZA ZW GH GM KE LS MW SD SL SZ UG ZW AM AZ BY KG KZ MD RU TJ  
TM AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI  
CM GA GN GW ML MR NE SN TD TG

Main International Patent Class: G06F-017/60

International Patent Class: G06F-017/50

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 12245

English Abstract

The invention provides for tracking and day-to-day management of technical requirements, cost and environmental details of existing computer data centers, and the creation of scenarios for determining the optimum acquisition, expansion and reconfiguration strategies of the data centers as well as the forecasting of technical requirements, costs and environmental requirements of existing and proposed configurations of the data centers. A knowledge base comprises technical and financial specifications of various storage devices and other computer hardware as provided. A modeling tool allows for the creation of various "What-If" scenarios of possible data center configurations for long term projections of the technical and financial requirements of existing, modified or proposed data center configurations. The cost of individual devices, systems or data center locations, as well as the cost of proposed new equipment including software are tracked. Also provided is the ability to present technical, financial and other information of a data center of various levels, such as at the configuration, location, system and individual device levels, as well as the ability to prepare

custom reports, tables and charts of the information.

#### French Abstract

L'invention concerne un systeme assurant le suivi et la gestion courante de besoins techniques, de details de couts et d'environnement de centres de donnees informatiques existants, et la mise en oeuvre de scenarios pour determiner des strategies d'acquisition, d'expansion et de reconfiguration optimales des centres de donnees, ainsi que la prevision des besoins techniques, des besoins en matiere de couts et d'environnement de configurations existantes et proposees des centres de donnees. Une base de connaissances comporte des specifications techniques et financieres de divers dispositifs de stockage et d'autre materiel informatique. Un outil de modelisation permet de produire divers scenarios de simulation de configurations de centres de donnees possibles pour obtenir des projections a long terme des besoins techniques et financiers de configurations de centres de donnees existants, modifies ou proposes. On recherche le cout de dispositifs individuels, d'emplacements de centres de donnees ou de systemes, ainsi que le cout d'equipements neufs proposes, y compris de logiciels. L'invention permet egalement de presenter des informations techniques, financieres et autres concernant un centre de donnees a differents niveaux, par exemple aux niveaux de la configuration, de l'emplacement, des dispositifs systeme et individuels, et de preparer des rapports, des tableaux et des graphiques personnalises a partir de ces informations.

Main International Patent Class: G06F-017/60

International Patent Class: G06F-017/50

Fulltext Availability:

Claims

#### Claim

... column 9, line 8 - line 46  
Y column 31, line 13 - line 31 6@121131  
Y CHOON-LING SIA ET AL: "Predictive 6,12,13  
**capacity planning** : a proactive approach"  
INFORMATION AND SOFTWARE TECHNOLOGY, MARCH  
1997, ELSEVIER, NETHERLANDS,  
vol. 39, no. 3, pages 195-204,  
XPOO0874535  
ISSN: 0950-5849  
page 201, column...

...V) 1-18  
16 September 1997 (1997 16)  
column 1, line 50 -column 2, line 10  
A GRUMMITT A: "Automating enterprise 1-18  
performance management"  
**CAPACITY** MANAGEMENT REVIEW, MARCH 1998,  
**DEMAND** TECHNOL, USA,  
vol. 26, no. 3, pages 1, 3-11, 14 - 159  
XPOO0874610  
ISSN: 1049-2194  
page 11, line 21 -page 15, line 34  
Form PCTIISA/210 (continuation of second sheet) (July 1992)  
page 2 of 2  
INTERNATIONAL SEARCH REPORT Internal I **Application** No  
Information on patent **family** members  
PCT/US 99/20168  
Patent document Publication Patent family Publication  
cited in search report date member(s) date  
US 5515524 A 07 1996 AU...

23/5,K/4 (Item 4 from file 348)  
TIALOG(R) File 348:EUROPEAN PATENTS  
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00970387

Resource scheduler  
Betriebsmittelsablaufsteuerung  
Planificateur de ressources

PATENT ASSIGNEE:

INTERNATIONAL BUSINESS MACHINES CORPORATION, (200123), , Armonk, NY  
10504, (US), (applicant designated states:  
AT;BE;CH;CY;DE;DK;ES;FI;FR;GB;GR;IE;IT;LI;LU;MC;NL;PT;SE)

INVENTOR:

Hough, Roger Eldred, 4803 Palisade Drive, Austin, Texas 78731, (US)  
Squillante, Mark Steven, 21 Scofield Road, Pound Ridge, New York 10576,  
(US)

Fong, Liana Liyow, 121 Fieldpoint Drive, Ivington, New York 10533, (US)

LEGAL REPRESENTATIVE:

Davies, Simon Robert (75452), IBM, United Kingdom Limited, Intellectual  
Property Law, Hursley Park, Winchester, Hampshire SO21 2JN, (GB)

PATENT (CC, No, Kind, Date): EP 880095 A2 981125 (Basic)  
EP 880095 A3 990804

APPLICATION (CC, No, Date): EP 98304030 980521;

PRIORITY (CC, No, Date): US 862044 970522

DESIGNATED STATES: DE; FR; GB

INTERNATIONAL PATENT CLASS: G06F-009/46

ABSTRACT EP 880095 A2

A method is disclosed of scheduling jobs to be executed by a resource in a computer system wherein the jobs are grouped in classes, with the job classes vying for the resource's attention being arranged in a hierarchy. Each job class has a time-function value that controls when the job class is selected by the resource if processing time becomes available. Within a particular level of the hierarchy, scheduling priorities are defined by one or more time-based functions, each of which may be constant or dynamically varying. When constant time-based functions are used, each job class has a schedule value that remains fixed with time. When dynamic time-based functions are used, job class "time-function values" are modified to alter the timing by which the job class(es) acquire the resource.

ABSTRACT WORD COUNT: 130

LEGAL STATUS (Type, Pub Date, Kind, Text):

Examination: 20000329 A2 Date of request for examination: 20000129

Application: 981125 A2 Published application (Alwith Search Report  
;A2without Search Report)

Change: 20000419 A2 Designated contracting states changed  
20000301

Search Report: 990804 A3 Separate publication of the European or  
International search report

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	9848	868
SPEC A	(English)	9848	8715
Total word count - document A			9583
Total word count - document B			0
Total word count - documents A + B			9583

INTERNATIONAL PATENT CLASS: G06F-009/46

...SPECIFICATION domains, they often have limited success, or they do not perform well at all in **system** environments with different **requirements**. Indeed, it is not unusual to find systems in which the scheduling and dispatching parameters must be manually adjusted in response to large changes in customer **workload**. This **requirement** gives rise to undesirable complexity and overhead. Thus, in addition to supporting multiple diverse scheduling...

23/5,K/7 (Item 7 from file: 348)  
DIALOG(R) File 348:EUROPEAN PATENTS  
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00820141

Measuring workload usage of a central processing unit.

Messung der Verwendung von der Arbeitsbelastung einer zentralen  
Verarbeitungseinheit.

Mesure de l'utilisation de change de travail d'une centrale de traitement.

PATENT ASSIGNEE:

SUN MICROSYSTEMS, INC., (1392737), 901 San Antonio Road, MS PAL01-521,  
Palo Alto, California 94303, (US), (Proprietor designated states: all)

INVENTOR:

Fuller, Billy, 8510 Sutterfield Drive, Colorado Springs, Colorado 80920,  
(US)

LEGAL REPRESENTATIVE:

Hanna, Peter William Derek et al (72341), Tomkins & Co., 5 Dartmouth Road  
, Dublin 6, (IE)

PATENT (CC, No, Kind, Date): EP 762286 A1 970312 (Basic)

EP 762286 B1 000223

APPLICATION (CC, No, Date): EP 96650034 960801;

PRIORITY (CC, No, Date): US 518668 950824

DESIGNATED STATES: DE; FR; GB; IT; NL

INTERNATIONAL PATENT CLASS: G06F-011/34

CITED PATENTS (EP B): EP 320329 A; DE 2558368 A

CITED REFERENCES (EP B):

PATENT ABSTRACTS OF JAPAN vol. 016, no. 260 (P-1369), 12 June 1992 & JP

04 062644 A (AGENCY OF IND SCIENCE & TECHNOL), 27 February 1992,

IBM TECHNICAL DISCLOSURE BULLETIN, vol. 22, no. 1, June 1979, NEW YORK,  
US, pages 272-275, XP002019141 L.S. ROGERS: "Microprocessor Utilization  
Indicator. June 1979."

IBM TECHNICAL DISCLOSURE BULLETIN, vol. 37, no. 10, 1 October 1994, page  
111/112 XP000475596 "LOW-OVERHEAD PROCESSOR IDLE DETECTION IN A  
MULTITASKING OPERATING SYSTEM";

ABSTRACT EP 762286 A1

A method and apparatus is disclosed for measuring central processing  
unit (CPU) (3) usage required to execute a predetermined workload that  
includes system overhead usage of the CPU as well as direct usage of the  
CPU. The CPU is driven to run processing cycles to perform a workload  
task (22) or to perform a CPU bound task (20). The CPU bound task is  
cycle soaker; a cycle soaker task runs directly on the CPU and has no  
system overhead. The cycle soaker task runs whenever there is no workload  
task ready to run. A monitor module measures (28) the total of all cycles  
run by the central processing unit from beginning to end of execution of  
the workload and measures the soaker cycles run by the CPU from beginning  
to end of execution of the workload. CPU usage attributable to the  
workload is measured (30) by deducting the soaker cycles from the total  
of all cycles.

ABSTRACT WORD COUNT: 157

NOTE:

Figure number on first page: 3

LEGAL STATUS (Type, Pub Date, Kind, Text):

Oppn None: 010207 B1 No opposition filed: 20001124

Change: 20000216 A1 Title of invention (German) changed: 19991227

Lapse: 020313 B1 Date of lapse of European Patent in a  
contracting state (Country, date): DE  
20000524, FR 20000721,

Lapse: 010418 B1 Date of lapse of European Patent in a  
contracting state (Country, date): FR  
20000721,

Application: 970312 A1 Published application (A1with Search Report  
;A2without Search Report)

Grant: 20000223 B1 Granted patent

Examination: 971022 A1 Date of filing of request for examination:

0826

Examination: 971112 A1 Date of despatch of first examination report:  
971001  
\*Assignee: 990616 A1 Applicant (transfer of rights) (change): SUN  
MICROSYSTEMS, INC. (1392737) 901 San Antonio  
Road, MS PAL01-521 Palo Alto, California 94303  
(US) (applicant designated states:  
DE;FR;GB;IT;NL)  
Change: 990616 A1 Title of invention (German) (change)  
Change: 990616 A1 Title of invention (English) (change)  
Change: 990616 A1 Title of invention (French) (change)  
\*Assignee: 990616 A1 Previous applicant in case of transfer of  
rights (change): SUN MICROSYSTEMS, INC.  
(1392735) 2550 Garcia Avenue, MS PAL1-521  
Mountain View, California 94043-1100 (US)  
(applicant designated states: DE;FR;GB;IT;NL)  
LANGUAGE (Publication,Procedural,Application): English; English; English  
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200008	1032
CLAIMS B	(German)	200008	915
CLAIMS B	(French)	200008	1444
SPEC B	(English)	200008	3715
Total word count - document A			0
Total word count - document B			7106
Total word count - documents A + B			7106

INTERNATIONAL PATENT CLASS: G06F-011/34

...SPECIFICATION measuring not only the direct usage of the CPU by the  
workload but also the **system** overhead usage of the CPU **required** to  
complete the **workload** . The indirect or system overhead usage refers to  
usage of the CPU by subsystems or...

23/5,K/8 (Item 8 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
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00779141

**Computer system power management**  
**Leistungssteuerung eines Computersystems**  
**Gestion d'alimentation de systeme d'ordinateur**  
PATENT ASSIGNEE:

International Business Machines Corporation, (200120), Old Orchard Road,  
Armonk, N.Y. 10504, (US), (applicant designated states: DE;FR;GB)

INVENTOR:

Rawson, Andrew Radcliffe, 1105 Dover Pass, Cedar Park, Texas 78613, (US)  
Sotomayor Jr., Guy Gil, 6042 Sherwood Glen Way No.3, West Palm Beach,  
Florida 33415, (US)

LEGAL REPRESENTATIVE:

Ling, Christopher John (80401), IBM United Kingdom Limited, intellectual  
Property Department, Hursley Park, Winchester, Hampshire SO21 2JN, (GB)

PATENT (CC, No, Kind, Date): EP 727728 A1 960821 (Basic)

APPLICATION (CC, No, Date): EP 96300253 960112;

PRIORITY (CC, No, Date): US 388960 950215

DESIGNATED STATES: DE; FR; GB

INTERNATIONAL PATENT CLASS: G06F-001/32

ABSTRACT EP 727728 A1

A method and apparatus for managing power states of at least one  
hardware resource, including registering (602) at least one hardware  
resource power state corresponding to a software process, determining  
(803) whether a current hardware resource power state fulfills the  
registered hardware resource power state corresponding to the software  
process, and modifying (804) the current hardware resource power state  
that is determined not to fulfill the registered hardware resource power  
state prior to executing the software process. (see image in original

document)  
ABSTRACT WORD COUNT: 97

LEGAL STATUS (Type, Pub Date, Kind, Text):  
Withdrawal: 20000405 A1 Date of withdrawal of application: 20000112  
Application: 960821 A1 Published application (A1with Search Report  
;A2without Search Report)  
Examination: 970326 A1 Date of filing of request for examination:  
970120

LANGUAGE (Publication,Procedural,Application): English; English; English  
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPAB96	702
SPEC A	(English)	EPAB96	4747
Total word count - document A			5449
Total word count - document B			0
Total word count - documents A + B			5449

INTERNATIONAL PATENT CLASS: G06F-001/32

...SPECIFICATION allows system software to more accurately estimate critical low power condition based on the current **application workload**. In addition, the resource **requirement** registry process provides for the successful operation of multimedia and other realtime applications in a...

23/5,K/18 (Item 18 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
(c) 2002 European Patent Office. All rts. reserv.

00274713

Method for performance evaluation of a data processor system.  
Verfahren fur die Abschätzung der Leistung eines Datenprozessorsystems.  
Methode pour l'evaluation de performance d'un systeme processeur de donnees.

PATENT ASSIGNEE:

DIGITAL EQUIPMENT CORPORATION, (313080), 146 Main Street, Maynard, MA  
01754, (US), (applicant designated states:  
AT;BE;CH;DE;ES;FR;GB;GR;IT;LI;LU;NL;SE)

INVENTOR:

Chinnaswamy, Ackanaickenpalayam V., 8 Quail Hollow Road, Westboro, MA  
01581, (US)  
Wilk, Stanley A., 66 S. Lenox Street, Worcester, MA 01620, (US)  
Torrey, James H, Jr., 84 Potter Hill Road, Grafton, MA 01519, (US)

LEGAL REPRESENTATIVE:

Dubois-Chabert, Guy (15351), Societe de Protection des Inventions 25, rue  
de Ponthieu, F-75008 Paris, (FR)

PATENT (CC, No, Kind, Date): EP 259224 A2 880309 (Basic)  
EP 259224 A3 891123  
EP 259224 B1 950510

APPLICATION (CC, No, Date): EP 87401948 870831;

PRIORITY (CC, No, Date): US 904093 860902

DESIGNATED STATES: AT; BE; CH; DE; ES; FR; GB; GR; IT; LI; LU; NL; SE

INTERNATIONAL PATENT CLASS: G06F-011/34

CITED PATENTS (EP A): EP 98169 A

CITED REFERENCES (EP A):

DIGITAL REVIEW, May 1986, pages 109-114, Boston, US; J. STEINBERG: "An expert system that helps managers tune their VAX/VMS systems isn't as farfetched as it sounds"

IEEE INTERNATIONAL CONFERENCE ON COMMUNICATIONS '86, Toronto, 22nd-25th June 1986, vol. 2, pages 1225-1229, IEEE, New York, US; S.K. GOYAL et al.: "Expert systems in network maintenance and management"

IEEE INTERNATIONAL CONFERENCE ON COMMUNICATIONS '86, Toronto, 22nd-25th June 1986, vol. 1, pages 206-211, IEEE, New York, US; S. BHATIA et al.: "Performance advisor: An analysis tool for computer communication systems";

## ABSTRACT EP 259224 A2

A method for evaluating the performance of a data processor system includes data collection, analysis, and report generation. The data collection involves the periodic selection of a number of metrics, which are measurable values in the data processing system, and system parameters, which are system values that can be adjusted. The analysis involves the application of certain rules comparing metrics and parameters to corresponding thresholds. The report generation includes the display of recommendations to be taken when certain rules have triggered a certain number of times, and, if desired, the presentation of displays of certain work load characteristics of either the data processor system by itself or of a network of such data processor system.

ABSTRACT WORD COUNT: 119

## LEGAL STATUS (Type, Pub Date, Kind, Text):

Lapse: 20000126 B1 Date of lapse of European Patent in a contracting state (Country, date): AT 19950510, BE 19950510, CH 19950510, LI 19950510, GR 19950510, SE 19950810,

Application: 880309 A2 Published application (A1with Search Report ;A2without Search Report)

Search Report: 891123 A3 Separate publication of the European or International search report

Examination: 900314 A2 Date of filing of request for examination: 900111

Examination: 930310 A2 Date of despatch of first examination report: 930127

Grant: 950510 B1 Granted patent

Lapse: 951206 B1 Date of lapse of the European patent in a Contracting State: CH 950510, LI 950510

Lapse: 951206 B1 Date of lapse of the European patent in a Contracting State: CH 950510, LI 950510

Lapse: 960110 B1 Date of lapse of the European patent in a Contracting State: AT 950510, CH 950510, LI 950510

Lapse: 960124 B1 Date of lapse of the European patent in a Contracting State: AT 950510, CH 950510, LI 950510, SE 950810

Lapse: 960131 B1 Date of lapse of the European patent in a Contracting State: AT 950510, BE 950510, CH 950510, LI 950510, SE 950810

Oppn None: 960501 B1 No opposition filed

LANGUAGE (Publication,Procedural,Application): English; English; English

## FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPABF1	1133
CLAIMS B	(English)	EPAB95	626
CLAIMS B	(German)	EPAB95	540
CLAIMS B	(French)	EPAB95	740
SPEC A	(English)	EPABF1	20158
SPEC B	(English)	EPAB95	15690
Total word count - document A			21293
Total word count - document B			17596
Total word count - documents A + B			38889

INTERNATIONAL PATENT CLASS: G06F-011/34

...SPECIFICATION and type of I/O devices in that system.

To determine whether a particular operating **system** is performing efficiently, it is **necessary** to analyze certain **work load** characteristics such as the amount of paging, swapping or free memory, the number of computable...

...SPECIFICATION and type of I/O devices in that system.

To determine whether a particular operating **system** is performing efficiently, it is **necessary** to analyze certain **work load** characteristics such as the amount of paging, swapping or free memory,

the number of computable

23/5,K/21 (Item 2 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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00885036 \*\*Image available\*\*

**AUTOMATED SYSTEM AND METHOD FOR DESIGNING MODEL BASED ARCHITECTURES OF INFORMATION SYSTEMS**

**SYSTEME ET PROCEDE AUTOMATISES DE CONCEPTION D'ARCHITECTURES DE SYSTEMES D'INFORMATION A PARTIR D'UN MODELE**

Patent Applicant/Inventor:

ABU EL ATA Nabil A, 1820 S. 181st Street, Omaha, NE 68130, US, US  
(Residence), FR (Nationality)

Legal Representative:

Mary Lou WAKIMURA (et al) (agent), Hamilton, Brook, Smith & Reynolds,  
P.C., 530 Virginia Road, P.O Box 9133, Concord, MA 01742-9133, US,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200219148 A2 20020307 (WO 0219148)

Application: WO 2001US26958 20010829 (PCT/WO US0126958)

Priority Application: US 2000228702 20000829; US 2001942096 20010828

Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU

CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP

KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PH PL PT RO RU

SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG

(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW

(EA) AM AZ BY KG KZ MD RU TJ TM

Main International Patent Class: **G06F-017/00**

Publication Language: English

Filing Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 5544

#### English Abstract

An automated system and method is provided for system architects to design model based architectures of information systems. From an initial model of a proposed system architecture, performance metrics are modeled and compared against a set of user-defined business requirements. For unacceptable metrics, modifications to the system architecture are determined and proposed to the system architect. If accepted, the model of the system architecture is automatically modified and modeled again. Once the modeled performance metrics satisfy the business requirements, a detailed description of the system architecture derived from the model may be output for further development stages.

#### French Abstract

L'invention concerne un systeme et un procede automatise permettant aux architectes de systemes de concevoir des architectures de systemes d'information a partir d'un modele. A partir du modele initial d'architecture de systeme propose, des mesures de performance sont modelees et comparees a un ensemble de conditions commerciales definies par l'utilisateur. Dans le cas de mesures inacceptables, des modifications de l'architecture du systeme sont definies puis proposees a l'architecte du systeme. S'il est accepte, le modele d'architecture du systeme est automatiquement modifie et remodele. Lorsque les mesures de performance modelees sont conformes aux conditions commerciales, une description detaillee de l'architecture du systeme derivee du modele peut etre generee pour des etapes de developpement ulterieures.

Legal Status (Type, Date, Text)

Publication 20020307 A2 Without international search report and to be republished upon receipt of that report.

Main International Patent Class: **G06F-017/00**

Fulltext Availability:

Detailed Description

Detailed Description

... interconnected hardware and software components, implementing one or more business solutions. The architectures of such **systems** are typically **required** to handle varying degrees of **workload** and priorities under imposed business constraints.

The design of system architectures having such requirements and...

23/5,K/27 (Item 8 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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00790492 \*\*Image available\*\*

**WORKLOAD MANAGEMENT IN A COMPUTING ENVIRONMENT**

**GESTION DE CHARGE DE TRAVAIL DANS UN ENVIRONNEMENT INFORMATIQUE**

Patent Applicant/Assignee:

INTERNATIONAL BUSINESS MACHINES CORPORATION, New Orchard Road, Armonk, NY 10504, US, US (Residence), US (Nationality)

IBM UNITED KINGDOM LIMITED, P.O. Box 41, North Harbour, Portsmouth, Hampshire PO6 3AU, GB, GB (Residence), GB (Nationality), (Designated only for: MC)

Inventor(s):

KUBALA Jeffrey, 10 Morgan Lane, Poughkeepsie, NY 12570, US,

NICK Jeffrey, 1957 Route 9W, West Park, NY 12493, US,

YOCOM Peter, 17B Wildwood, Wappingers Falls, NY 12590, US,

EILERT Catherine, 34 Sherwood Heights Drive, Wappingers Falls, NY 12590, US,

Legal Representative:

DAVIES Simon Robert (agent), IBM United Kingdom Limited, Intellectual Property Law, Hursley Park, Winchester, Hampshire SO21 2JN, GB,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200123974 A2 20010405 (WO 0123974)

Application: WO 2000GB3720 20000928 (PCT/WO GB0003720)

Priority Application: US 99408470 19990928; US 99407212 19990928; US 99407391 19990928

Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ

DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ

LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG

SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW

(EA) AM AZ BY KG KZ MD RU TJ TM

Main International Patent Class: **G06F**

Publication Language: English

Filing Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 15079

English Abstract

The allocation of shareable resources of a computing environment is dynamically adjusted to balance the workload of that environment.

Workload is managed across two or more partitions of a plurality of partitions of the computing environment, which are preferably configured as groups of partitions. At least one group of the computing environment includes a plurality of partitions of the computing environment.

Shareable resources are assigned to the partitions of the group and are managed as a group. The managing includes dynamically adjusting allocation of a shareable resource of at least one partition of the two or more partitions in order to balance workload goals of the two or more partitions. One example of this is managing central processing unit (CPU)

resources within a computing environment. When the allocation of CPU resources to a partition of the computing environment is to be adjusted, the allocation is adjusted dynamically. The adjusting includes modifying processor weights associated with the partitions.

#### French Abstract

L'affectation de ressources partageables dans un environnement informatique est reglee dynamiquement de facon a equilibrer la charge de cet environnement. Ladite charge est geree par au moins deux partitions d'une pluralite de partitions de l'environnement informatique, configurees de preference en groupes de partitions. Au moins un groupe de l'environnement informatique comprend une pluralite de partitions de l'environnement informatique. Les ressources partageables sont affectees aux partitions de ce groupe et sont gerees en groupe. La gestion consiste a regler dynamiquement l'affectation d'une ressource partageable d'au moins une partition parmi les partitions, de facon a equilibrer les objectifs de charge de travail desdites partitions. La gestion des ressources d'une unite centrale de traitement (UC) dans un environnement informatique est un exemple de cette gestion. Lorsque l'affectation des ressources UC a une partition d'un environnement informatique doit etre reglee, cette affectation est reglee dynamiquement. Le reglage consiste a modifier les poids des processeurs associes aux partitions.

Legal Status (Type, Date, Text)

Publication 20010405 A2 Without international search report and to be republished upon receipt of that report.

Examination 20010621 Request for preliminary examination prior to end of 19th month from priority date

Main International Patent Class: **G06F**

Fulltext Availability:

Detailed Description

#### Detailed Description

... important workload. This allows CPU resources to be dynamically moved to the needed partitions, as **workload requirements** change.

The present invention further provides **computer programs** for implementing the above methods. Such computer programs generally comprise instructions executable by a machine...

**23/5,K/28 (Item 9 from file: 349)**

DIALOG(R)File 349:PCT FULLTEXT

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00762396 \*\*Image available\*\*

**ADAPTIVE AND SCALABLE SERVER CONTROL**

**COMMANDE DE SERVEUR ADAPTATIVE ET EVOLUTIVE**

Patent Applicant/Assignee:

SYCAMORE NETWORKS INC, 150 Apollo Drive, Chelmsford, MA 01824-0986, US,  
US (Residence), US (Nationality)

Inventor(s):

CHAN Dickson K T, 2 Jack Rabbit Lane, Westford, MA 01886, US,

Legal Representative:

SCHURGIN Stanley M (et al) (agent), Weingarten, Schurgin, Gagnebin &  
Hayes LLP, Ten Post Office Square, Boston, MA 02109, US,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200075802 A1 20001214 (WO 0075802)

Application: WO 2000US11786 20000502 (PCT/WO US0011786)

Priority Application: US 99137354 19990603; US 99419521 19991018

Designated States: AU BR CA CN IN JP KR

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

Main International Patent Class: **G06F-015/173**

Publication Language: English

Filing Language: English

Fulltext Availability:

English Abstract

A system for server control, including an administration server process (28) which monitors the performance of a number of server instances, and which is responsive to a minimum service level which the system must be able to meet in order to accept a request for service from a client system (18). The minimum level of service is referred to as a Quality of Service (QoS). The server instances include a Network Management Server (NMS) (51) of which the administration server is a part. The QoS of the NMS (51) is referred to as the QoNMS. QoS or QoNMS may be specified by the user or the network operator on a per sessions basis, as indicated by a network operator. When the system accepts a request for service, it may instantiate an additional server instance to provide service to the requesting user.

French Abstract

Cette invention se rapporte a un systeme de commande de serveur, qui utilise un processus serveur d'administration (28) qui surveille la performance d'un certain nombre d'instances de serveur (12) et qui reagit a un niveau de service minimum que le systeme doit etre capable de satisfaire afin d'accepter une requete de service de la part d'un systeme client (18). Le niveau de service minimum est appele qualite de service (QOS). Parmi les instances serveur (12), on trouve un serveur de gestion de reseau (NMS) (51), dont le serveur d'administration fait partie. La qualite de service (QOS) du serveur NMS (51) est appelee QOSNMS. La qualite QOS ou le serveur NMS peuvent etre specifiques par l'utilisateur ou par l'operateur reseau a chaque session, tels qu'indiqués par un operateur reseau. Lorsque le systeme accepte une requete de service, il peut individualiser (instancier) une instance de serveur additionnelle, pour fournir le service a l'utilisateur qui en a fait la requete.

Legal Status (Type, Date, Text)

Publication 20001214 A1 With international search report.

Correction 20010621 Corrected version of Pamphlet front pages: revised abstract received by the International Bureau after completion of the technical preparations for international publication

Republication 20010621 A1 With international search report.

Examination 20010823 Request for preliminary examination prior to end of 19th month from priority date

Main International Patent Class: G06F-015/173

Fulltext Availability:

Detailed Description

Detailed Description

... as its "scalability".

Users often desire to grow system capacity over time, as their business **needs** expand. However, existing **systems** frequently do not provide users with the ability to manage the scalability of their systems in an efficient and convenient fashion. Some existing **systems** attempt to determine the resources required for a specific **workload** based on software simulations. Simulation based approaches to capacity prediction have significant drawbacks.

Most fundamentally...

...certain software

can execute on certain hardware platforms. This approach fails to recognize that growing **workload requirements** generally result, at some point, in the system reaching its capacity limit. Existing systems have...

...In particular, network operators must often

spend many hours attempting to estimate what resources are **required** for the network management **system** (NMS) itself. Such estimates are often inaccurate due to unforeseen run-time factors that have...

...performance. Accordingly, trial and error has been necessary in many cases to determine the actual **system** resources **required** to provide an acceptable level of capacity within the NMS itself.

For these reasons, it...

23/5,K/34 (Item 15 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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00559157 \*\*Image available\*\*

**ACCEPTABILITY TESTING FOR CAPACITY PLANNING OF A DATA STORAGE SYSTEM**  
**ESSAI D'ACCEPTABILITE EN VUE DE LA PLANIFICATION DE LA CAPACITE D'UN**  
**SYSTEME DE STOCKAGE DE DONNEES**

Patent Applicant/Assignee:

HEWLETT-PACKARD COMPANY,

Inventor(s):

BOROWSKY Elizabeth Lynn,

GOLDING Richard,

MERCHANT Arif,

SPASOJEVIC Mirjana,

WILKES John,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200022530 A1 20000420 (WO 0022530)

Application: WO 99US23804 19991013 (PCT/WO US9923804)

Priority Application: US 98172114 19981013; US 99379204 19990821

Designated States: JP AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

Main International Patent Class: **G06F-011/34**

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 5214

English Abstract

Data storage devices of an enterprise system are tested to determine whether the enterprise system is optimally configured. Each data storage device is tested to determine whether it can satisfy a performance requirement for an assigned group of *n* workloads. A group of *n* inequalities are generated, and only up to *n* of the inequalities may be evaluated to determine whether the **device** satisfies the performance **requirement** for the assigned group of **workloads**. The inequalities are based on a phased, correlated model of I/O activity.

French Abstract

On effectue des essais sur des organes de stockage de donnees d'un systeme d'entreprise afin de determiner si ce dernier est configure de facon optimale. On procede a des essais sur chaque organe de stockage de donnees afin de determiner s'il satisfait aux exigences de performance pour un groupe donne de *n* charges de travail. On produit un groupe de *n* inegalites et on n'evalue au maximum que *n* inegalites afin de determiner si l'organe satisfait aux exigences de performance pour le groupe donne de charges de travail. Les inegalites sont etablies sur la base d'un modele phase et correle de l'activite d'entree/sortie.

Main International Patent Class: **G06F-011/34**

Fulltext Availability:

Detailed Description

Claims

English Abstract

...and only up to n of the inequalities may be evaluated to determine whether the **device** satisfies the performance **requirement** for the assigned group of **workloads**. The inequalities are based on a phased, correlated model of I/O activity.

#### Detailed Description

... performance requirement is satisfied by a data storage device that is assigned a group of **workloads**. At least one performance **requirement**

model for each **workload** in the group is assigned. Each model is an increasing function of request rate. The...is used to evaluate at least one model in the group to determine whether the **device** satisfies the performance **requirement**.

Other aspects and advantages of the present invention will become apparent from the following detailed...

...guarantees. Only as many as n tests are performed to determine whether the data storage **device** 12 satisfies the performance **requirements** for the given group of n **workloads** S1 to Sn.

A performance **requirement** R(-) based on I/O request rate is deemed satisfied if

R(kj(t) ...monitoring and

evaluating the enterprise system 310. During initial configuration, information 15 such as **workload** specifications 402, business **needs** 404, and storage- **device**

specifications 406 are provided to a configuration engine 414. This information may be stored in...

...310.

The workload specifications 402 may be determined by performing an informed assessment of the **workload requirements** for the enterprise **system**

310. Such an assessment might include predictions of current **workload requirements** and growth trends in **workloads**. A workload prediction might be based on loads generated by a predetermined number of users in existing computer systems. These predictions may be made by knowledgeable **system** designers.

The business **needs** 404 might include **system** attributes that are desired by a customer or client. Such attributes might include transaction - 13...

#### Claim

... the configuration, satisfies a performance requirement, the second means - 19 determining at least one performance **requirement** model for each **workload** in each group, each model being an increasing function of request rate, the request rate...

...third means for evaluating at least one model of each group to determine whether each **device** as configured satisfies its performance **requirement**.

11 The apparatus of claim 10, further comprising fourth means for supplying the distribution...

...whether each device satisfied its performance requirement.

13 Apparatus for determining whether a data storage **device** satisfies a performance **requirement** for an assigned group of **workloads**, the apparatus comprising:  
a processor; and

28/5,K/1 (Item 1 from file: 348)  
DIALOG(R) File 348:EUROPEAN PATENTS  
(c) 2002 European Patent Office. All rts. reserv.

01411592

Method of distributing a spare time of CPU and system for performing the method

Verfahren zum Verteilen von der Reservezeit der CPU und System um dieses Verfahren auszuführen

Procede pour distribuer le temps de reserve du CPU et systeme pour mettre en oeuvre ce procede

PATENT ASSIGNEE:

NEC CORPORATION, (236690), 7-1, Shiba 5-chome, Minato-ku, Tokyo, (JP),  
(Applicant designated States: all)

INVENTOR:

Nagato, Masaki, c/o NEC Corporation, 7-1, Shiba 5-chome, Minato-ku, Tokyo, (JP)

LEGAL REPRESENTATIVE:

Glawe, Delfs, Moll & Partner (100692), Patentanwälte Postfach 26 01 62, 80058 München, (DE)

PATENT (CC, No, Kind, Date): EP 1193595 A2 020403 (Basic)

APPLICATION (CC, No, Date): EP 2001121840 010911;

PRIORITY (CC, No, Date): JP 2000275116 000911

DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE; TR

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

INTERNATIONAL PATENT CLASS: G06F-009/50

ABSTRACT EP 1193595 A2

A CPU time distribution system includes a plurality of terminals used by resource buyers, a plurality of computers used by resource suppliers, and a managing server which connected to the terminals and the computers via a network. The managing server receives from the terminal, a **request** for an unused CPU processing **time** of the computers of the resource supplier. The request includes an identifier, for example a name, of a **program** which the resource buyer **requires** executing on the **computer**. The **server** further receives from the computers, a response for the request by the terminals. Then the server sends the program to the computer, when the computer sends a notification of an application for the request. The program is executed on the computer and the executing results of the program are sent to the terminal of the requesting resource buyer in exchange for a payment.

ABSTRACT WORD COUNT: 146

NOTE:

Figure number on first page: 1

LEGAL STATUS (Type, Pub Date, Kind, Text):

Application: 020403 A2 Published application without search report

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200214	1496
SPEC A	(English)	200214	7408
Total word count - document A			8904
Total word count - document B			0
Total word count - documents A + B			8904

INTERNATIONAL PATENT CLASS: G06F-009/50

...ABSTRACT terminals and the computers via a network. The managing server receives from the terminal, a **request** for an unused CPU processing **time** of the computers of the resource supplier. The request includes an identifier, for example a name, of a **program** which the resource buyer **requires** executing on the **computer**. The **server** further receives from the computers, a response for the request by the terminals. Then the...

01313654

**A transaction processing system**

**System fur die Verarbeitung von Transaktionen**

**Systeme de traitement de transactions**

PATENT ASSIGNEE:

GE Capital Bilfinans AB, (3244260), Box 1544, 171 29 Solna, (SE),

(Applicant designated States: all)

INVENTOR:

Norlin, Klas, C/o Petersson, Tranebergsvagen 38, 167 44 Bromma, (SE)

Soderman, Per, Flygaregatan 15, 761 42 Norrtalje, (SE)

Edstrom, Lise-Lott, Villa Solliden, 186 97 Brottbys, (SE)

LEGAL REPRESENTATIVE:

Goode, Ian Roy (31097), GE LONDON PATENT OPERATION, Essex House, 12/13

Essex Street, London WC2R 3AA, (GB)

PATENT (CC, No, Kind, Date): EP 1122677 A2 010808 (Basic)

EP 1122677 A3 010822

APPLICATION (CC, No, Date): EP 2001300948 010202;

PRIORITY (CC, No, Date): GB 2499 000203

DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;  
LU; MC; NL; PT; SE; TR

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

INTERNATIONAL PATENT CLASS: G06F-017/60

ABSTRACT EP 1122677 A3

A transaction processing system (1) allows users to interact using Web browsers (2) with Web servers and **Application servers** (ASs). The Web **servers** have connection **clients** (CC) and resident controller **configuration** and administrator **programs** for handling transaction requests. Each connection client (CC) routes a request to a connection processor (CP) in an application server (AS). The connection processor (CP) dynamically generates a HTML page for transmission to the connection client (CC). This is performed with use of data servers (DSs) in the application server. This structure is modular and flexible and handles **transaction requests** with a good response **time**.

ABSTRACT WORD COUNT: 100

NOTE:

Figure number on first page: 1

LEGAL STATUS (Type, Pub Date, Kind, Text):

Application: 010808 A2 Published application without search report

Search Report: 010822 A3 Separate publication of the search report

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
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CLAIMS A	(English)	200132	289
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SPEC A	(English)	200132	11194
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Total word count - document A	11483
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Total word count - document B	0
-------------------------------	---

Total word count - documents A + B	11483
------------------------------------	-------

INTERNATIONAL PATENT CLASS: G06F-017/60

...ABSTRACT processing system (1) allows users to interact using Web browsers (2) with Web servers and **Application servers** (ASs). The Web **servers** have connection **clients** (CC) and resident controller **configuration** and administrator **programs** for handling transaction requests. Each connection client (CC) routes a request to a connection processor...

...data servers (DSs) in the application server. This structure is modular and flexible and handles **transaction requests** with a good response **time**.

00495621

**Method for facilitating the configuration of programs.**

**Verfahren zur Erleichterung der Konfiguration von Programmen.**

**Procede pour faciliter la configuration des programmes.**

PATENT ASSIGNEE:

International Business Machines Corporation, (200120), Old Orchard Road,  
Armonk, N.Y. 10504, (US), (applicant designated states: DE;FR;GB)

INVENTOR:

Lemble, Philippe, 77 avenue du Groupe Morgan, F-06700 Saint Laurent du  
Var, (FR)

Menanteau, Guy, Azur Marine, 98 bis Avenue de la Corniche Fleurie,  
F-06200 Nice, (FR)

Pacchiano, Stephan, Soleillette, 173 rue Bondil - Le Brus, F-83140 Six  
Fours les Plages, (FR)

Sagols, Germain, Residence Le Park Villa 1, 73 Chemin des Collettes,  
F-06800 Cagnes-sur-Mer, (FR)

Truchi, Alain, Les Plans de la Colline, Boulevard Louis Roux, F-06700  
Saint Laurent du Var, (FR)

LEGAL REPRESENTATIVE:

Lattard, Nicole (16571), Compagnie IBM France Departement de Propriete  
Intellectuelle, F-06610 La Gaude, (FR)

PATENT (CC, No, Kind, Date): EP 541875 A1 930519 (Basic)

APPLICATION (CC, No, Date): EP 91480169 911115;

PRIORITY (CC, No, Date): EP 91480169 911115

DESIGNATED STATES: DE; FR; GB

INTERNATIONAL PATENT CLASS: **G06F-009/44**

CITED REFERENCES (EP A):

PROCEEDINGS OF THE IEEE 1988 NATIONAL AEROSPACE AND ELECTRONICS

CONFERENCE, NAECON 1988 vol. 2/4, 23 May 1988, DAYTON, US pages 600 -  
607; K. NIX: 'CHANGE AND CONFIGURATION CONTROL IN ADA ENVIRONMENTS: THE  
"STONEMAN" PERSPECTIVE REVISITED'

AT & T TECHNICAL JOURNAL. vol. 67, no. 4, July 1988, NEW YORK, US pages  
59 - 70; S. CICHINSKI ET AL.: 'PRODUCT ADMINISTRATION THROUGH SABLE AND  
NMAKE'

IBM TECHNICAL DISCLOSURE BULLETIN. vol. 32, no. 3B, August 1989, NEW  
YORK, US pages 50 - 56; 'MULTIPLE MAINTENANCE LIBRARY SUPPORT SYSTEM'  
CONFERENCE ON SOFTWARE TOOLS 15 April 1985, NEW YORK, NY, US pages 100 -  
103; A. LOBBA: 'AUTOMATED CONFIGURATION MANAGEMENT';

ABSTRACT EP 541875 A1

A method implemented by a data processing system 10 accessible to users  
through **workstations** for facilitating the operation of **configuring** a  
**program** comprising a plurality of functions made of a plurality of parts  
(modules).

An administration table is built in response to data entered by a user  
at a workstation. The table comprises the correspondence between each  
function of a program and a user assigned to said function. A request  
table is built in response to requests for creating or modifying  
specified functions, said **requests** originating from users and said  
**second** table comprising for each **request**, a request number, a  
description of the requested work, the function assignee retrieved from  
the first table. Then, a message is sent to any function assignee  
corresponding to a **request** stored in the **second** table, said message  
comprising the **request** number, the description of the requested work to  
inform the function assignee. A reason table is built in response to  
users starting the work requested per a selected request, said third  
table comprising for each request number, a status set to a first value  
(USER) when a user is making the work, to a second value when the work is  
completed, and to a third value when the function is integrated in a  
program configuration. By reading the reason table in response to a  
command from a user indicative that a configuration is to be started, a  
report of the status of the requests is prepared which helps the program  
administrator to prepare a new configuration of a program. (see image in  
original document)

ABSTRACT WORD COUNT: 262

LEGAL STATUS (Type, Pub Date, Kind, Text):

Application: 930519 A1 Published application (A1with Search Report  
;A2without Search Report)  
Examination: 931110 A1 Date of filing of request for examination:  
930918  
Withdrawal: 960828 A1 Date on which the European patent application  
was withdrawn: 960704

LANGUAGE (Publication,Procedural,Application): English; English; English  
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPABF1	887
SPEC A	(English)	EPABF1	3949
Total word count - document A			4836
Total word count - document B			0
Total word count - documents A + B			4836

INTERNATIONAL PATENT CLASS: G06F-009/44

...ABSTRACT A1

A method implemented by a data processing system 10 accessible to users through **workstations** for facilitating the operation of **configuring** a **program** comprising a plurality of functions made of a plurality of parts (modules).

An administration table...

...request table is built in response to requests for creating or modifying specified functions, said **requests** originating from users and said **second** table comprising for each **request**, a request number, a description of the requested work, the function assignee retrieved from the first table. Then, a message is sent to any function assignee corresponding to a **request** stored in the **second** table, said message comprising the **request** number, the description of the requested work to inform the function assignee. A reason table...

28/5,K/12 (Item 12 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

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00484621

A database management system

Datenbankverwaltungssystem

Systeme de gestion de bases de donnees

PATENT ASSIGNEE:

KABUSHIKI KAISHA TOSHIBA, (213130), 72, Horikawa-cho, Saiwai-ku,  
Kawasaki-shi, Kanagawa-ken 210, (JP), (applicant designated states:  
DE;FR;GB)

INVENTOR:

Kakimoto, Mitsuru, c/o Intellectual Prop. Div., Toshiba Corporation,  
1-1-1 Shibaura, Minato-ku, Tokyo, (JP)

LEGAL REPRESENTATIVE:

BATCHELLOR, KIRK & CO. (100991), 2 Pear Tree Court Farringdon Road,  
London EC1R 0DS, (GB)

PATENT (CC, No, Kind, Date): EP 462751 A2 911227 (Basic)  
EP 462751 A3 930811  
EP 462751 B1 971229

APPLICATION (CC, No, Date): EP 91305318 910612;

PRIORITY (CC, No, Date): JP 90157492 900618

DESIGNATED STATES: DE; FR; GB

INTERNATIONAL PATENT CLASS: G06F-017/30

CITED REFERENCES (EP A):

PATENT ABSTRACTS OF JAPAN vol. 8, no. 159 (P-289)24 July 1984

IEEE JOURNAL ON SELECTED AREAS IN COMMUNICATION vol. 7, no. 3, April

1989, NEW YORK US pages 354 - 363 JING-FEI REN ET AL. 'An Analysis of  
the Effect on Multiversions on the Performance of Timestamp Algorithms'

;

## ABSTRACT EP 462751 A2

A database management system comprises a plurality of sites having a computer, a database and a clock. The plurality of sites are interconnected by a communication line. The database stores a plurality of data for processing. When a transaction request is generated in a site, the transaction management section of the **computer** in the site examines which **database** includes **necessary** data for executing the transaction. Maximum delay decision section determines maximum delay to send an instruction to the site having the database examined. Locktime decision section determines locktime according to the maximum delay determined and the current **time** of the clock. Then, the **transaction** management section sends the locktime as a lock instruction to the site having the database examined through the communication line. A scheduler section receives the lock instruction sent by the transaction management section. A lock activation section activates the scheduler section when the locktime coincides with the current time of the clock. The scheduler section locks the necessary data in the database in response to activation by the lock activation section. (see image in original document)

ABSTRACT WORD COUNT: 182

## LEGAL STATUS (Type, Pub Date, Kind, Text):

Application: 911227 A2 Published application (Alwith Search Report ;A2without Search Report)  
 Examination: 911227 A2 Date of filing of request for examination: 910625  
 Search Report: 930811 A3 Separate publication of the European or International search report  
 \*Assignee: 950823 A2 Applicant (transfer of rights) (change): KABUSHIKI KAISHA TOSHIBA (213130) 72, Horikawa-cho, Saiwai-ku Kawasaki-shi, Kanagawa-ken 210, Tokyo (JP) (applicant designated states: DE;FR;GB)  
 Examination: 960605 A2 Date of despatch of first examination report: 960422  
 Grant: 971229 B1 Granted patent  
 Oppn None: 981223 B1 No opposition filed

LANGUAGE (Publication,Procedural,Application): English; English; English

## FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	9712W3	553
CLAIMS B	(German)	9712W3	497
CLAIMS B	(French)	9712W3	689
SPEC B	(English)	9712W3	3420
Total word count - document A			0
Total word count - document B			5159
Total word count - documents A + B			5159

INTERNATIONAL PATENT CLASS: G06F-017/30

...ABSTRACT When a transaction request is generated in a site, the transaction management section of the **computer** in the site examines which **database** includes **necessary** data for executing the transaction. Maximum delay decision section determines maximum delay to send an...

...examined. Locktime decision section determines locktime according to the maximum delay determined and the current **time** of the clock. Then, the **transaction** management section sends the locktime as a lock instruction to the site having the database...

28/5,K/16 (Item 1 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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00863454 \*\*Image available\*\*

EMBEDDED DIAGNOSTIC SYSTEM AND METHOD  
 SYSTEME ET PROCEDE DE DIAGNOSTIC INTEGRE

Patent Applicant/Assignee:

ROCKWELL TECHNOLOGIES LLC, Mail Code A15, P.O. Box 1085, Newbury Park, CA 91358-0085, US, US (Residence), US (Nationality)

Inventor(s):

PROVAN Gregory, 3946 Greenwood Street, Newbury Park, CA 91320-5222, US,  
DARWICHE Adnan, 919 Levering Avenue #206, Los Angeles, CA 90024, US,

Legal Representative:

HEYBL Jaye G (et al) (agent), Koppel & Jacobs, 555 St. Charles Drive,  
Suite 107, Thousand Oaks, CA 91360, US,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200197031 A2 20011220 (WO 0197031)

Application: WO 2001US19211 20010614 (PCT/WO US0119211)

Priority Application: US 2000594648 20000615

Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU

CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR

KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE

SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW

(EA) AM AZ BY KG KZ MD RU TJ TM

Main International Patent Class: **G06F-011/00**

Publication Language: English

Filing Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 5942

English Abstract

An embedded real time diagnostic system that is applicable to fault detection and isolation in host systems having repetitive subsystems. A query directed acyclic graph (Q-DAG) (57) for one of each type of repetitive subsystem is compiled off-line from a causal network model and is stored in host system computer memory. When a fault in the host system is detected by the **computer** (98), a replicating **program** replicates the **necessary** subsystem Q-DAGs (57) to construct an overall host system Q-DAG. A data table (60) which contains information on how the various Q-DAGs (57) are linked based on the hardware architecture of the host system, is also accessed by the computer (98). The data table (60) contains a matrix which dictates which Q-DAGs (57) are linked, and Q-DAG level information on the Q-DAG nodes and which nodes are linked to nodes in other Q-DAGs. The new diagnostic system **uses** less memory and **processor** throughput while still providing full system diagnostics.

French Abstract

La presente invention concerne un systeme de diagnostic en temps reel integre pouvant etre applique a la detection et a l'isolement des defaillances dans les systemes hotes comportant des sous-systemes repetitifs. On procede a la compilation hors ligne, a partir d'un modele de reseau causal, d'un graphe acyclique d'interrogation (Q-DAG) (57) pour chaque type de sous-systeme repetitif, que l'on stocke dans la memoire informatique du systeme hote. Lorsque l'ordinateur (98) detecte une defaillance, un programme de duplication duplique les Q-DAG (57) de sous-systeme necessaires afin de construire un Q-DAG de sous-systeme global. L'ordinateur (98) accede egalement a une table de donnees (60) contenant des informations sur la maniere dont les differents Q-DAG (57) sont relies en fonction de l'architecture materielle du systeme hote. La table de donnees precitee (60) contient une matrice qui indique quels sont les Q-DAG (57) relies, et des informations de niveau Q-DAG relatives aux noeuds des Q-DAG et aux noeuds qui sont relies a des noeuds dans d'autres Q-DAG. Le nouveau systeme de diagnostic de l'invention permet d'economiser la memoire et le debit du processeur tout en offrant un diagnostic de systeme complet.

Legal Status (Type, Date, Text)

Publication 20011220 A2 Without international search report and to be republished upon receipt of that report.

Main International Patent Class: **G06F-011/00**

English Abstract

...host system computer memory. When a fault in the host system is detected by the **computer** (98), a replicating **program** replicates the **necessary** subsystem Q-DAGs (57) to construct an overall host system Q-DAG. A data table...

...and which nodes are linked to nodes in other Q-DAGs. The new diagnostic system **uses** less memory and **processor** throughput while still providing full system diagnostics.

**28/5,K/33** (Item 18 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
(c) 2002 WIPO/Univentio. All rts. reserv.

00574714 \*\*Image available\*\*

**HARDWARE/SOFTWARE CODESIGN SYSTEM**  
**SYSTEME A CONCEPTION MIXTE MATERIEL/LOGICIEL**

Patent Applicant/Assignee:

DASH TECHNOLOGIES LIMITED,  
SAUL Jonathan Martin,  
AUBURY Matthew Philip,

Inventor(s):

SAUL Jonathan Martin,  
AUBURY Matthew Philip,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200038087 A1 20000629 (WO 0038087)  
Application: WO 99GB4338 19991221 (PCT/WO GB9904338)  
Priority Application: GB 9828381 19981222

Designated States: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK  
DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR  
LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ  
TM TR TT TZ UA UG US UZ VN YU ZA ZW GH GM KE LS MW SD SL SZ TZ UG ZW AM  
AZ BY KG KZ MD RU TJ TM AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL  
PT SE BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

Main International Patent Class: **G06F-017/50**

Publication Language: English

Fulltext Availability:

Detailed Description  
Claims

Fulltext Word Count: 13369

English Abstract

A hardware/software codesign system for making an electronic circuit which includes both dedicated hardware and software controlled resources. The codesign system receives a behavioural description of the target electronic system and automatically partitions the **required** functionality between **hardware** and **software**, while being able to vary the parameters (e.g. size or power) of the hardware and/or software. Thus, for instance, the hardware and the processor for the software can be formed on an FPGA, each being no bigger than is necessary to perform the desired functions. The codesign system outputs a description of the required processor (which can be in the form of a net list for placement on the FPGA), machine code to **run** on the **processor**, and a net list or register transfer level description of the necessary hardware. It is possible for the user to write some parts of the description of the target system at register transfer level to give closer control over the operation of the target system, and the **user** can specify the processor or **processors** to be **used**, and can change, for instance, the partitioner, compilers or speed estimators used in the codesign system. The automatic partitioning may be performed by using a genetic algorithm which estimates the performance of randomly generated different partitions and selects an optimal one of them.

French Abstract

L'invention concerne un système a conception mixte matériel-logiciel permettant de réaliser un circuit électronique qui comprend à la fois des ressources spécifiques commandées par matériel et des ressources spécifiques commandées par logiciel. Ce système a conception mixte reçoit une description comportementale de la part du système électronique cible et répartit automatiquement les fonctions nécessaires entre le matériel et le logiciel tout en étant capable de modifier les paramètres (p. ex. dimension ou puissance) du matériel et/ou du logiciel. Ainsi le matériel et le processeur pour le logiciel peuvent par exemple être formes sur un prediffuse programmable, chacun ne dépassant pas la taille requise pour réaliser les fonctions désirées. Le système a conception mixte sort une description du processeur requis (sous forme de liste d'interconnexions pour la disposition sur le prediffuse programmable), un code d'instructions fonctionnant sur le processeur, et une liste d'interconnexions ou une description à base d'instructions de transfert registre à registre du matériel nécessaire. L'utilisateur peut écrire certaines parties de la description du système cible de transfert registre à registre ce qui lui permet de mieux contrôler les opérations du système cible et il peut indiquer le ou les processeur(s) devant être utilisé(s) et peut modifier par exemple le répartiteur, les compilateurs ou les estimateurs de vitesse utilisés dans le système a conception mixte. La répartition automatique peut être réalisée au moyen d'un algorithme génétique qui estime la performance des différentes répartition générées de manière aléatoire, et sélectionne une répartition optimale parmi ces dernières.

Main International Patent Class: G06F-017/50

#### English Abstract

...codesign system receives a behavioural description of the target electronic system and automatically partitions the **required** functionality between **hardware** and **software**, while being able to vary the parameters (e.g. size or power) of the hardware...

...in the form of a net list for placement on the FPGA), machine code to **run** on the **processor**, and a net list or register transfer level description of the necessary hardware. It is...

...transfer level to give closer control over the operation of the target system, and the **user** can specify the processor or **processors** to be **used**, and can change, for instance, the partitioner, compilers or speed estimators used in the codesign...

34/5/1 (Item 1 from file 348)  
DIALOG(R) File 348:EUROPEAN PATENTS  
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00107837

**Partitionable multiprocessing systems.**  
**Aufteilbare Multiprozessorsysteme.**  
**Systemes de multiprocesseurs fractionnables.**  
PATENT ASSIGNEE:

UNISYS CORPORATION, (842796), Township Line and Union Meeting Roads, Blue  
Bell Pennsylvania 19424, (US), (applicant designated states:  
CH;DE;FR;GB;IT;LI;NL;SE)

INVENTOR:

**Quernemoen, John Michael**, 1590 Long Lake Road, New Brighton Minnesota  
55112, (US)  
Voltz, Timothy Robert, 215 East Viking Drive, St. Paul Minnesota 55117,  
(US)  
Campbell, Richard Paul, 11437 Quincy Street N.E., Blaine Minnesota 55434,  
(US)  
Krisunas, Joseph Gerard, 11524 Monroe, Blaine Minnesota 55434, (US)

LEGAL REPRESENTATIVE:

Orchard, Oliver John (34501), JOHN ORCHARD & CO. Staple Inn Buildings  
North High Holborn, London WC1V 7PZ, (GB)

PATENT (CC, No, Kind, Date): EP 99244 A2 840125 (Basic)  
EP 99244 A3 870304  
EP 99244 B1 901024

APPLICATION (CC, No, Date): EP 83303963 830707;

PRIORITY (CC, No, Date): US 395936 820707

DESIGNATED STATES: CH; DE; FR; GB; IT; LI; NL; SE

INTERNATIONAL PATENT CLASS: G06F-015/16; G06F-009/46;

CITED PATENTS (EP A): US 3812469 A; US 3832695 A; US 3641505 A; US 3253262  
A

ABSTRACT EP 99244 A2

Partitionable multiprocessing systems.

A multiprocessing system is partitionable into different applications under software control. The sub-systems of the system are permanently interconnected physically, and a sub-system access unit is provided to enable and disable the sub-system interconnections according to the configuration required. The sub-system access unit includes an interface (410) receiving partitioning requests from command sources which are passed over a channel (412), together with an identification of the command source, to address a cabling information table stored in the sub-system access unit, and this provides an identification of the input/output processor of the application concerned. The sub-system access unit processor then checks whether the command source is one that has been assigned to that application, and if not rejects the request. If the source identities match, the request is further checked against stored partitioning information to determine whether the change can be made, and if so, the necessary signals for enabling and disabling the interconnections are generated. If not, a signal causing the request to be rejected is generated.

The stored information may include a signal indicating that a peripheral sub-system addressed through a shared peripheral interface is reserved to the exclusive use of a particular application, so that a partitioning change requesting access to that sub-system will be rejected.

ABSTRACT WORD COUNT: 213

File 275:Gale Group Computer B(TM) 1983-2002/Apr 24  
     (c) 2002 The Gale Group  
 File 583:Gale Group Globalbase(TM) 1986-2002/Apr 25  
     (c) 2002 The Gale Group  
 File 47:Gale Group Magazine DB(TM) 1959-2002/Apr 23  
     (c) 2002 The Gale group  
 File 621:Gale Group New Prod.Annou.(R) 1985-2002/Apr 24  
     (c) 2002 The Gale Group  
 File 636:Gale Group Newsletter DB(TM) 1987-2002/Apr 24  
     (c) 2002 The Gale Group  
 File 16:Gale Group PROMT(R) 1990-2002/Apr 24  
     (c) 2002 The Gale Group  
 File 160:Gale Group PROMT(R) 1972-1989  
     (c) 1999 The Gale Group  
 File 148:Gale Group Trade & Industry DB 1976-2002/Apr 24  
     (c)2002 The Gale Group  
 File 624:McGraw-Hill Publications 1985-2002/Apr 24  
     (c) 2002 McGraw-Hill Co. Inc  
 File 98:General Sci Abs/Full-Text 1984-2002/Mar  
     (c) 2002 The HW Wilson Co.  
 File 553:Wilson Bus. Abs. FullText 1982-2002/Apr  
     (c) 2002 The HW Wilson Co  
 File 88:Gale Group Business A.R.T.S. 1976-2002/Apr 23  
     (c) 2002 The Gale Group  
 File 15:ABI/Inform(R) 1971-2002/Apr 25  
     (c) 2002 ProQuest Info&Learning  
 File 635:Business Dateline(R) 1985-2002/Apr 25  
     (c) 2002 ProQuest Info&Learning  
 File 9:Business & Industry(R) Jul/1994-2002/Apr 24  
     (c) 2002 Resp. DB Svcs.  
 File 810:Business Wire 1986-1999/Feb 28  
     (c) 1999 Business Wire  
 File 647:CMP Computer Fulltext 1988-2002/Apr W1  
     (c) 2002 CMP Media, LLC  
 File 674:Computer News Fulltext 1989-2002/Apr W4  
     (c) 2002 IDG Communications  
 File 696:DIALOG Telecom. Newsletters 1995-2002/Apr 24  
     (c) 2002 The Dialog Corp.  
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Set	Items	Description
S1	20094	(SIZING OR SIZE OR SIZES) (5N) (SERVER? ? OR WEBSERVER? ? OR DATABASE? ? OR DBMS OR RDBMS)
S2	185437	(REQUIR? OR NEEDS OR NECESS? OR DEMAND? ? OR CONFIGUR?) (3N- ) (SERVER? OR WEBSERVER? OR APPLICATION? OR PROGRAM? ? OR SOFTWARE OR DATABASE? OR DBMS OR RDBMS) (3N) (HARDWARE OR CLIENT? ? OR PC? ? OR COMPUTER? ? OR WORKSTATION? ?)
S3	55117	(REQUIR? OR NEEDS OR NECESS? OR DEMAND? ? OR CONFIGUR?) (3N- ) (SERVER? OR WEBSERVER? OR APPLICATION? OR PROGRAM? ? OR SOFTWARE OR DATABASE? OR DBMS OR RDBMS) (3N) (TERMINAL? ? OR DEVICE? ? OR EQUIPMENT OR MACHINE? ? OR OPERATING)
S4	490290	(WORKLOAD? ? OR WORK()LOAD? ? OR PROCESSING OR PERFORMANCE OR CAPACITY) (5N) (REQUIR??? OR REQUIREMENT? ? OR NEEDS OR NECESSARY OR NECESSIT???? OR DEMAND? ?)
S5	1324349	(TYPE? ? OR KIND? ? OR SORT? ? OR FAMILY OR CATEGORY OR CLASS OR BRAND? ? OR VARIET??? OR GROUP? ?) (5N) (SERVER? ? OR WEBSERVER? ? OR APPLICATION? ? OR PROGRAM? ? OR SOFTWARE? ? OR -

S6 306527 DATABASE? ? OR DBMS OR RDBMS)  
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 ONING OR RUN???? OR ACTIVE OR ACTIVIT???)  
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 OR WAIT? OR LATENC??? OR LATENT)  
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 S9 16242 CAPACITY() PLANNING  
 S10 595046 BENCHMARK? ? OR METRIC? ?  
 S11 377 S1(S)S4  
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 S13 15 S1(S)S12  
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 OR RDBMS)  
 S15 28 S4(S)S14  
 S16 15 RD (unique items)  
 S17 58 S9(S)S12  
 S18 50 RD (unique items)  
 S19 4 (S1 OR S9) (S)S5(S)S6:S7(S)S8  
 S20 69 S14(S)S5:S8  
 S21 43 RD (unique items)  
 S22 38 S21 NOT PY=2001:2002  
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 S24 86 S2:S3(S)S12  
 S25 55 RD (unique items)  
 S26 10 S2:S3(S)S5(S)S6:S7(S)S8  
 S27 9 RD (unique items)

02249509 SUPPLIER NUMBER: 53354298 (THIS IS THE FULL TEXT)  
**Canadian firm at top of anthill. (Silicon Graphics Inc. (SGI) ) (Product Information)**

Brooks, Andrew  
Computing Canada, 15(1)

Dec 7, 1998

ISSN: 0319-0161 LANGUAGE: English RECORD TYPE: Fulltext

WORD COUNT: 888 LINE COUNT: 00075

TEXT:

SGI turns to Platform Computing's workload management standard for distributed computing

Bad "bug" jokes aside, supercomputers and ants may have more in common than meets the eye. High-performance computer manufacturer Silicon Graphics Inc. (SGI) and the makers of the animated feature ANTZ have both turned to a workload management tool developed in Canada to get "virtual supercomputer" performance from distributed systems.

The tool is the Load Sharing Facility (LSF) suite, a product of Platform Computing Corp., which opened its new international headquarters in Markham, Ont. early in last month.

LSF is designed to access and share the computing resources of distributed Windows NT and UNIX environments. In addition to workload sharing, LSF includes job scheduling and workload analysis management.

"Computing technology people are beginning to use more horsepower," says Brad Casemore, Platform's industry marketing manager. "It makes sense to look at solutions which help maintain peak (use) so you can use your processing resources more efficiently and get more productivity out of the people who are trying to get their jobs done faster."

Load sharing technology is designed to share distributed computing resources transparently among a large number of users, in effect turning a server cluster or a computer farm into what appears from the user's desktop to be a single supercomputer or mainframe. LSF contains a workload scheduling element which is guided by policies on resource availability, job execution calendaring and, if **necessary**, external events. It also analyzes **workload** data to support **capacity planning** strategies, and monitors and administers computing resources online. It works in Windows NT and UNIX environments, and in environments that are a mix of the two.

Last month SGI announced an agreement in principle with Platform to adopt LSF as the workload management standard for SGI platforms. One thing that makes the deal remarkable is that LSF will replace SGI's own workload management product, Network Queuing Environment (NQE). NQE was initially designed for Cray Research Inc.'s supercomputers. SGI optimized the software for its own boxes after it bought Cray in 1996.

Up to now, LSF and NQE were prime contenders in the workload management market, waging a seesaw struggle over functionality and customers.

NQE was a worthy enough contender, but according to Peter Rigsbee, SGI's marketing manager, Strategic Software Organization, based in Eagan, Minn., the battle was in danger of drawing the company away from its core hardware business.

"We're seeing more customers going to clustering," he says. "This is one area where LSF is quite a bit ahead of NQE. We said 'Should we put a lot of investment into NQE to catch up with Platform or can we take advantage of what they've done?'"

Many SGI customers were already using LSF anyway, as its wider range of hardware vendor support made it an easier fit for heterogeneous computing environments. (Few SGI customers use SGI equipment exclusively, Rigsbee says.)

Companies such as Compaq, Hewlett-Packard, Hitachi, NEC and Sony bundle, distribute or co-market LSF to their own customers.

"It's extremely robust," says Casemore. "That's exactly what (customers) have had on the mainframe: whatever you say about it, it has been reliable. That's been one of the things that has discouraged them from moving some applications to a distributed model."

As Rigsbee says, if a SGI customer is running a series of IRIX servers, a user can submit a job through LSF by saying they'd like to run on one of them. NQE could do this too, but Rigsbee says LSF is better at checking workloads, and matching computing resources to user requirements.

For the animated feature ANTZ, LSF was used by Pacific Data Images (PDI), a Palo Alto, Calif.-based animation studio hired by the DreamWorks studio of Glendale, Calif., to do animation production.

ANTZ was PDI's first full-length feature, and the volume of rendering required was well beyond anything the company had ever done before.

PDI was forced to implement a "render farm," increasing the number of its dedicated rendering computers from a few dozen to several hundred.

"We wanted to treat our network computing resources as one large compute engine," said Mark Kirk, technical director for systems at PDI.

"An animator should be able to easily submit jobs to a queue, not caring about where the renders actually run. We needed to insulate the animators from the details."

Workload sharing is especially useful in digital content creation, where massive amounts of graphics information are manipulated. However, the technology is increasingly applied in other areas. LSF has customers in the financial, oil and gas, manufacturing, R&D and high-tech sectors, among others.

U.S. pharmaceutical giant Pfizer Inc. uses workload sharing for an automated document conversion and distribution system that generates drug approval applications for submission to the U.S. Food and Drug Administration.

Also last month, Platform announced that it was donating \$52,000 worth of LSF site licences to two Canadian medical research facilities.

The Toronto labs, one at Mount Sinai Hospital and the other at the Hospital for Sick Children, are involved in the Human Genome Project, a huge, worldwide effort to unlock the secrets of human DNA.

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COMPANY NAMES: Platform Computing Corp.--Products; Silicon Graphics Inc.

--Equipment and supplies

GEOGRAPHIC CODES/NAMES: 1CANA Canada; 1USA United States

DESCRIPTORS: Product description/specification; Network software

EVENT CODES/NAMES: 330 Product information

PRODUCT/INDUSTRY NAMES: 7372620 (Network Software)

SIC CODES: 7372 Prepackaged software

TICKER SYMBOLS: SGI

TRADE NAMES: Load Sharing Facility (Network software)--Usage

FILE SEGMENT: CD File 275

18/9/4 (Item 4 from file: 275)

DIALOG(R) File 275:Gale Group Computer DB(TM)

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01852422 SUPPLIER NUMBER: 17603043 (THIS IS THE FULL TEXT)

**Capacity management for client/server architectures.**

Domanski, Bernard

Enterprise Systems Journal, v10, n9, p30(7)

Sep, 1995

ISSN: 1053-6566 LANGUAGE: English RECORD TYPE: Fulltext; Abstract

WORD COUNT: 3415 LINE COUNT: 00301

ABSTRACT: The use of client/server architectures has grown tremendously over the past few years. However, many planned systems are not yet in place because of **capacity planning** and resource management issues. Capacity management requires applying a number of different analytical techniques, including statistical forecasting, simulation and benchmarking. A thorough capacity management analysis will determine what hardware and software will be **required** to support a given **workload**. The process, then, first **requires** the analyst to identify the composition of the workload, and through historical data, to predict the anticipated workload. A simulation model is then used to play out the anticipated workload to determine whether the desired level of service can be met. This is where what-if analysis can be done to determine where to change configurations to obtain

the most optimal system for the desired workload.

TEXT:

The past several years have seen the proliferation and use of client/server architectures within corporate America. According to the Gartner Group, nearly 60 percent of surveyed organizations expressed an interest in moving to client/server architectures for mission-critical applications. Yet today, less than 10 percent of those organizations actually have these newly architected mission-critical applications in place, and many people wonder why so few.

Simply stated, capacity planning and resource management of these systems have given rise to a new set of questions that traditional capacity planners are not fully equipped to answer. These questions include the following.

- \* What type of servers should be deployed?
- \* How many servers are needed?
- \* How big should the servers be to handle the application volume?
- How can you tell if the servers are optimized for the network

operating system and communications software that is in place?

Are applications properly configured for a mixed-platform environment?

Are appropriate measurement sources available?

Are appropriate capacity planning tools/techniques available?

Can traditional resource management functions (e.g., backup, security, etc.) be easily accomplished for a potential architecture under consideration?

The purpose of this article is simple: explore the components/techniques used in capacity management and highlight their strengths and weaknesses in client/server environments. The article first reviews the background and market perspective of resource management. Next, it reviews the capacity planning process:

- \* Define workload characterization
- \* Survey users for upcoming resource requirements
- \* Forecast workload levels.

Key parts of the capacity planning process not explored here include:

- \* Modeling potential new configurations
- \* Generating reports for management.

The intent is to increase your awareness of the planning issues that must be faced.

#### Background And Market Perspective

If the emergence of the PC marked the emergence of client/server computing, then you might say history began on January 1, 1980 --the default current date when starting a PC without an internal clock. At that time, resource management was practiced on S/370-type mainframes. Not only did IBM have performance and capacity tools, but a small industry emerged as well with tools and techniques that helped simplify management of these complex systems. Companies were producing measurement, analysis and reporting tools to extend the performance facilities already in MVS.

Historical measurement repositories began to emerge in the early 1980s. MXG (Merrill Consultants, Dallas, TX) and MICS (Morino Associates, Vienna, VA) allowed diverse measurement sources to be captured in a single logical location and, using SAS (SAS Institute, Inc., Cary, NC), allowed comprehensive reporting systems to be written. Entire chargeback and accounting applications began to emerge, driven by data captured in historical repositories. Capacity planning studies moved from paper and pencil analysis to the use of queuing models, driven by actual production data.

While the 1980s saw mainframe capacity techniques become more sophisticated, the cost of hardware steadily dropped. Companies such as DEC, Sun and Hewlett Packard (HP) advanced the use of UNIX-like operating systems at this time. Thus, as the 1990s arrived, the cost per MIPS for "small" machines became very appealing to the corporate world. No longer was the need for more capacity solved by adding more resources to the mainframe. Large applications were beginning to be reengineered to take advantage of the potential cost savings these smaller machines could provide. The world was changing -- but would the mainframe be left behind? No, but the mainframe would become surrounded by these smaller machines, all of which would work together to become a client/server architecture.

People and organizations work slowly, however. Client/server was not a revolutionary process but an evolutionary one. Mission-critical

applications had to be deployed on stable, maintainable and easily expandable platforms. Capacity planners began to ask important questions, beginning with: Do standards exist? For without standards, it would be difficult to add peripherals or even software when needed.

In the mainframe-only world, IBM developed the standard for operating systems years ago; this has been supported by S/390-compatible vendors. In the network area, however, no one vendor owns the standard. TCP/IP, for example, was originated by Sun Microsystems (Mountain View, CA) but donated to the public domain and subsequently enhanced by hundreds of people. UNIX, while designed and originally developed by Bell Labs, had its source code sold to thousands of universities worldwide, leading to Berkeley UNIX vs. AT&T UNIX. As each new midsize hardware manufacturer needed an operating system, yet another slight variant of UNIX was produced. In short, many UNIX versions exist today all similar, yet all different. While there are efforts underway to standardize these UNIX versions, they are still far from a single unifying release.

Another frightening threat posed by client/server architectures is the lack of a single coherent systems management infrastructure. Mainframe functions that are all but forgotten become enormous in a distributed environment that is running mission-critical applications -- backup and recovery, security, software distribution, etc.

The changing world now must include the network as a key component of systems management. The key here is that if the network does not have the appropriate bandwidth, it will be the source of poor performance rather than the source being a CPU or a disk drive as in the past.

Finally, with the proliferation of GUI environments on many smaller platforms, it becomes possible to "reinvigorate" old applications. By merely converting character-based 3270 screens to point-and-click GUIs, old applications are given a new life--often without changing any of the true application logic on the mainframe. Thus, the decisions capacity planners must make become even more complex.

- \* What GUI platform should be deployed? OS/2, Windows, Motif, etc.

- \* What underlying hardware/operating system platform should be used? Sun/Solaris, HP/UX, Windows NT, 80x86/Netware, AIX, etc.

The environment could start to look like Figure 1, which implies that, again, the network is a critical component to both capacity and performance as well as reliability.

#### The Capacity Management Process

Understanding the process implies first identifying the components of the process, as shown in Figure 2. The capacity management process itself consists of applying several different techniques.

- \* Rules-Of-Thumb (ROTs) These reflect accumulated knowledge and wisdom regarding commonly observed relationships. ROTs are simple, well-known observations (such as Murphy's Law) that have obvious application to performance evaluation for example, blocksizes for tape and disk data sets should never be less than 4K. ROTs are excellent for day-to-day operations but are not much help in predicting hardware and software upgrade requirements. They are useful in estimating limits but limited when used to represent complex interrelationships such as the impact of upgrading a CPU. They are most useful when they are system-specific (e.g., MVS-only) and are often used with other modeling techniques.

Statistical Forecasting Statistical forecasting offers a more organized approach than ROTs. Forecasting is usually applied to workload volume (e.g., number of transactions per day) and utilization. It requires measuring and tracking items such as CPU, disk and channel utilizations, as well as workload volumes. It uses historical trends to predict future trends and can be used to examine subtle variations in data types of trends, seasonality and significance.

Forecasting also provides confidence in results. Statistical forecasting is not good for predicting performance for a workload on alternate configurations, nor is it useful for "what-if" analysis. For emerging applications (those under development), utilizations and workload volumes are often estimated. Unfortunately, these estimates are all too often made without enough information and, therefore, introduce inaccuracies. In addition, statistical forecasting offers little to the analyst charged with determining response time at some point in the future.

Simulation - Simulation has been a popular form of performance evaluation for some time. It allows analysts to model the system at a much

greater level of detail than is practical with queuing model. Historically, simulation models have been difficult to construct and often require large amounts of time to validate and execute.

**Benchmarking.** Benchmarking is probably the oldest performance evaluation technique historically applied when evaluating new hardware alternatives. Simply stated, you collect a representative sample of your workloads, run it on the proposed machine and evaluate performance using the measurements collected. Though it sounds simple, each of these steps is often timeconsuming and difficult.

**Queuing Modeling Models** based on queuing theory use mathematical formulas that express relationships between workloads and performance measures. Queuing models can represent very complex environments at a single instant in time; because of this, they can, at best, approximate performance.

The process of capacity management results in answering the fundamental question: What hardware/software environment is needed to support a given workload(s) at a prescribed volume while ensuring that service-level objectives (e.g., response time, turnaround time) are being met? (see Figure 3). Often, ROTs are first used as an initial guess to this question.

The process, therefore, is straight-forward.

\* First, identify the composition of the mission-critical workload (workload characterization). Sometimes, a mission-critical application is built first, thus presenting a difficult system sizing problem because of the lack of any measurement data.

Second, using historical data feeding statistical forecasting, predict the anticipated workload volume (i.e., number of transactions) at different points in time in the future. Alternatively, business forecasts are used to drive these analyses.

Third, drive a queuing or simulation model with the anticipated workload at the volumes resulting from forecasting to determine if service-level objectives can be met. If so, great; if not, use "what-if" analysis with the queuing model to change configurations so service levels can, in fact, be met.

Configuration changes can imply changing processors, memory size and type, number and type of disks in the I/O subsystem, paging/swapping configuration, operating system release levels and network parameters. Fourth, summarize the analyses using a management reporting system so different audiences can view capacity information of specific interest to them.

#### Workload Characterization

Workload characterization is the process of examining all of the executing entities (programs, processes, tasks, applications, etc.) on a system and classifying these into a small number of sets. For example, while there might be thousands of transactions that execute on a system in a given day, they may be classified (characterized) into a handful of sets (workloads) based on the type of application being performed (functional characterization). That is, all of the payroll transactions would fall into one workload, all of the accounts receivable transactions would fall into another, etc.

At times, work is characterized by resource consumption (resource characterization) rather than by similar function. For example, all transactions using a small amount of CPU time and doing a small number of I/Os fall into one class while those transactions using a high amount of CPU time and doing a large number of I/Os would fall into a different class. The objective is to reduce the potentially large number of executables into a much smaller summarized set that is not so unruly for statistical analysis and modeling.

Resource characterization has been closely examined and applied to traditional mainframe environments (TSO, batch, IMS, CICS). The predominant analysis technique applied is known as cluster analysis. Cluster analysis forms different groups of jobs or transactions based on similar resource consumptions. For example, jobs that do an extraordinary amount of I/O might fall into one cluster while jobs executing a very small amount of I/O might be grouped into another.

To perform any type of workload characterization, the key step is obtaining a set of performance metrics. Especially in the case of resource characterization, a rich measurement source collected during an active

period of execution should contain enough information to characterize the environment. While in the System 370/390 world there are rich measurement sources (e.g., SMF, RMF), this is not necessarily true in a client/server environment. First, consider the operating system. If an application deploys Windows or Windows for Workgroups, there currently are no measurements at all. Only if Windows NT is deployed are there any metrics and those, on close examination, are not nearly as rich as their counterparts in SMF and RMF.

The UNIX operating system does, in fact, have available metrics. However, those metrics, in sources like iostat, vm-stat and sar, leave you wanting more. In "Measuring UNIX Systems" (ESJ, April 1994), Chuck Hopf analyzed these three measurement sources and discussed the problems with the data from these sources. He also examined Performance Collection Software (PCS), the commercially available product from HP that runs not only on HP hardware but also on Sun machines and (soon) under AIX on the IBM RS/6000. While PCS is significantly richer than other UNIX measurement sources, the mere fact that it is a commercial product implies that it may not be available at all locations as it is not the industry standard. In fact, no industry standard set of metrics currently exists for UNIX-based systems. Currently, the Performance Management Working Group (PMWG) within the Computer Measurement Group (CMG) and several interested parties from the X/Open standards organization are examining this problem.

Continue to assume that the difficult task of obtaining client/server measurements can be overcome. What measurements should be used for client/server workload characterization? Clearly, the traditional measurements of CPU consumption -- I/O and memory should be used on both clients and servers. This should be supplemented, however, with information addressing locality metrics where the running process executed and where the data that is accessed is located.

The advantage of adding locality metrics is in defining workloads that take advantage of the client/server architecture. If a transaction is running on a particular server and has access to its required data on that server, network access is not required. Ideally, transactions in a missioncritical application should be designed to minimize network access because that, in turn, will minimize response time by eliminating the network. You should also consider the problem of process and data dependencies. Because transactions in client/server environments often visit many servers before completion, there may be a dependency as to which workloads must complete first in order to be synched with other executing workloads.

A client/server example involving the measurements can show what characterizes the use of a distributed systems file server. Assuming it is UNIX-based, the example first defines a file system request as any NFS file request: create, gettatr, mkdir, rmdir, read, write, etc. Statistically, there are several relevant factors to consider with file requests.

- \* Request Frequency Distribution omits infrequently occurring requests and concentrates on those requests that account for most of the activity.

- \* Request Interarrival Distribution depends on network speed; to build a model, you will need to know an arrival rate of the different types of requests. This becomes even more important if simulation is being used. It also depends on client speed; again, to build a model, you will need to know how quickly requests can be generated from the clients.

- \* File Referencing Behavior is how file service requests are distributed among the files in the file system; this helps identify potential system bottlenecks later on. Accesses tend to concentrate on a small subset of files rather than be scattered to all files. Typically, 90 percent of files are sequentially accessed.

Distribution of the Sizes of Read and Write Requests concerns the number of bytes requested by read and write requests. Often, there are many small (<500 byte) requests; sometimes there are many requests in a small range, Transaction Level is where file requests are actually SQL requests to a SQL server. The more complex, the fewer requests of lower complexity are sent to the server.

While techniques such as cluster analysis can still be applied, do not lose focus on the capacity questions that workload characterization must address for these environments.

- \* What workloads run at each node?

- \* What hardware is needed to maintain service due to workload growth?

- \* How many more users each existing server support?
- \* If the number of transactions increases by n percent, what will the server utilizations become?

#### Surveying The User Community

Workload surveys, while not performed the same way in all organizations, usually form the beginning of a workload forecasting effort. In essence, historical data of workload volumes (i.e., the number of transactions completed on a given day, week, etc.) is gathered and analyzed. The objective is to determine the number of transactions (by the different types) that will be submitted at times in the future. From that estimate, a performance model is built to analyze different physical hardware configurations to ensure that service levels (i.e., response times) are being met.

For surveys, consider the case of receiving workload volume estimates from application managers. While they may be interested in seeing their history of submitted work to be processed, they are often focusing on the impact of implementing new functionality into existing or new transactions. Why new functionality? The business probably required the functionality to increase revenue. Thus, if more revenue is produced, it likely comes from an increase in the sale of natural business units. So if the CFO has anticipated n percent more widgets (widgets being the natural business unit) will be sold next year, this may translate into an increase in the number and type of transactions submitted.

This use of natural business units is not isolated to the client/server world; on the contrary, the concept has been in use for legacy systems for quite some time. Thus, surveys become problems of translation: n percent more widgets implies a percent more transaction X, b percent more transaction Y, etc. Thus, for client/server capacity planning, use whatever mapping mechanism was in place for your legacy systems to generate workload volume estimates.

Those organizations that are implementing significant new functionality in applications may be satisfied to generate workload estimates by statistically analyzing historical trend information and generating workload forecasts. Understanding workload forecasting for client/server systems does not require any new insight over understanding workload forecasting for traditional legacy systems. The problem is essentially the same: to find the trends exhibited in historical data.

The challenge you face as capacity planners is straightforward. First, you must obtain historical workload volume measurements. A rule of thumb for forecasting is if you want to forecast n weeks/months/years into the future, you should collect n weeks/months/years worth of historical data. As previously pointed out, a robust set of metrics for analysis may not necessarily exist. Assuming you can get around this, you next must identify a forecasting tool to use. Happily, this problem is also not isolated to the client/server world. Thus, nearly any of the commercially available statistical tools you would have used on legacy systems could be used to analyze client/server data. Ideally, what is needed is a forecasting tool that could analyze historical data for linear as well as nonlinear trends, tell which trend is the best fit and identify the upper and lower levels of confidence for the forecast.

Thus, forecasting does not present any new problems. The statistical techniques apply equally for client/server as well as legacy environments. Again, do not lose sight of the critical questions forecasting can address with the aid of modeling, given multiple mission-critical workloads.

- \* What server do I place which workload on?
- \* Which workloads can be mixed on servers?
- \* Which workloads cannot be mixed on servers?

#### What's Next?

You must continue enumerating traditional capacity planning tasks beginning with modeling techniques -- particularly focusing on the strengths and weaknesses of analytic modeling vs. simulation for client/server environments. You also must explore the client/server implications on management reporting. If you can identify exactly who the user community has listened to (and perhaps still is), you will better understand how some hardware and software decisions have been made erroneously. Finally, you should highlight some of the most common system management issues that always must be taken into account before making the final client/server acquisition decision.

#### ABOUT THE AUTHOR

Bernard Domanski, Ph.D., is an authority in workload analysis, performance modeling, capacity management and applied expert systems. He was the General Chair of the Computer' Measurement Group (CMG) 1993 conference. He received the 1992 A.A. Michelson award for his contributions to Computer Performance Evaluation (CPE). Currently, he is a senior advisor to Legent Corp. as well as an associate professor of Computer Science at City University of New York, 24 Shira Lane, Englishtown, NJ 07726, (908) 303-1500.

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SPECIAL FEATURES: illustration; chart

DESCRIPTORS: Technology Information; Technology Overview; Client/Server Architecture

FILE SEGMENT: CD File 275

18/9/5 (Item 5 from file: 275)

DIALOG(R)File 275:Gale Group Computer DB(TM)

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01782613 SUPPLIER NUMBER: 16627192 (THIS IS THE FULL TEXT)

**Capacity planning for C S. (client server) (DB Expo in New York City)**

Computer Conference Analysis Newsletter, n355, p9(1)

Dec 20, 1994

ISSN: 1071-2216 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT

WORD COUNT: 715 LINE COUNT: 00062

#### TEXT:

The speaker was Jim Tyson, Senior Analyst, Synectics for Management Decisions, Inc.

It is mathematically impossible to do accurate capacity planning." But, there is a methodology that will help you.

"I don't want to give it a name or an acronym. It really has to do with common sense!"

"Client/Server has to do with saving money and providing flexibility. Over time, the net costs of client/server will drop below those for legacy systems."

You need capacity planning because of the high costs to upgrade and the high costs associated with a failure to plan. "The traditional ways to do capacity planning don't work with client/server." His advice: Don't let the vendor do the planning for you and don't rely on "winging it -- that's dangerous!" (Sounds like darn good advice! As he said, it's common sense!)

With a client/server system, in order to do capacity planning, you must first do a location analysis -- what piece of equipment does what, where, and when. Then you must determine the needed capacity -- what, where, and when. There are commercial products available for capacity planning. He listed some. "They deal mainly with the network." "The prices range up to \$50,000." "I won't rely on any one of them!"

"There are commercial methodologies, too." He named Ernst & Young, Arthur Andersen, and others. "They are expensive and usually require paying for consultants, too." "And then there are the home-brew methodologies." With them, you can scale the effort to the need and control the costs. But, they do require a thorough commitment and resources. And don't forget the importance of complete documentation -- "build a library and maintain it."

Doing **capacity planning** requires both technical skills and managerial skills. You must develop meaningful metrics for **workloads**, systems capabilities, and projected **needs**.

"Don't just look at the best-case. Look at peak loads and what you have to do if something goes wrong." You must measure:

response time

- optimal, nominal, and peak load

- in clock seconds

throughput

- peak and average

- in volume/time

network overhead

- latency, aggregate throughput, protocol overhead, device overhead, contention, etc.
- "There will be noise, collisions, etc."
- storage
  - type (disk, tape, optical)
  - speed (access time and data transfer rate)
  - capacity
- "This is the easiest part -- it's somewhat straight forward."
- computational
  - MIPS, MHz, benchmarks
  - "This isn't going to be a cornerstone of your planning because it doesn't tell you much."
  - Only use these metrics for comparisons.
- other metrics
  - flexibility, scalability, ease-of-use, initial costs, operational costs, etc.

"There is so much that can be adjusted or tweaked at each point!" His point: This stuff is complex!

To gather these metrics, you must find the right sources of information. He suggested talking to:

- the developers
- the end-users
- the system staff
- "They are usually already doing performance analysis."
- management

Don't forget to take into account the existing plans for the system, budgets, imposed standards, etc. And then there are the outside sources:

- vendor's literature
- published articles
- references
  - Don't just use those provided by the vendor.
- They may not be completely objective. Find your own.
- published benchmarks
- user groups

"Do your own benchmarks and live tests and talk to somebody who has the thing running."

CAN COMMENT: His points are well taken. Capacity planning is much more difficult in a client/server environment than in a mainframe shop. It's also much more important because things are more flexible -- they can change more easily and more quickly. Each piece of equipment added to the system increases the complexity not only of the system, but also adds to the complexity of doing capacity planning.

"There is no magic!" You must:

- identify the users and the applications
- project the raw workload
- establish the communications system overhead
- estimate the server workload
- assess the general hardware and software capabilities
- develop a server configuration

"The servers are the important elements|."

"Remember: If the system designers do a bad design, they are going to get bad performance!"

His advice -- his promised methodology -- is to concentrate on the important issues and ignore the other factors.

"Reduce the complexity of doing the planning." But always remember that "capacity planning is an integral part of systems management."

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DESCRIPTORS: DB-Expo; Client Server Architecture; Capacity Management  
FILE SEGMENT: CD File 275

18/9/18 (Item 1 from file: 47)  
DIALOG(R)File 47:Gale Group Magazine DB(TM)  
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04724283 SUPPLIER NUMBER: 19205703 (THIS IS THE FULL TEXT)  
Back to our roots. (Capacity planning tools are becoming a necessity.)

(Technology Information)

Sarna, David E.Y.; Febish, George J.

Datamation, v43, n3, p25(2)

March, 1997

ISSN: 0011-6963

LANGUAGE: English

RECORD TYPE: Fulltext; Abstract

WORD COUNT: 1091

LINE COUNT: 00088

**ABSTRACT:** Monitor performance on an ongoing basis to take advantage of the scalability and relative low cost of PC-based systems. **Capacity - planning** tools have been used for quite some time in the mainframe environment and now they are a necessity for Windows NT. Systems breakdowns can be avoided with the use a well thought out capacity modeling tool. The process involves several steps, the first being to define the equipment configuration. Next, define the types of **workloads** your system carries. Each **workload demands** some amount of CPU service, the response time and utilization rates can be calculated from the number of incoming transactions per hour. Once your model can correctly predict performance during low, average and peak usage it can form the basis for modeling experiments. This should enable you to prevent bottlenecks from clogging your system.

**TEXT:**

RECENTLY, MARILYN KANAS SENT US AN evaluation copy of Zitel's new NetArchitect. It brought us back to our roots for many reasons. In the mid-1980s, we developed a capacity-planning tool called ISS-Three. It included a mainframe-based data collection and reduction tool, as well as a PC-based modeling and reporting tool. It was used to anticipate configuration changes needed to respond to changes in workload. Based on an analytical model (that is, a mathematical one), it was very fast and fairly accurate. It competed principally with BGS Systems' Best/1.

Marilyn worked for us back then, and she marketed our product quite successfully. Ultimately, we sold ISS-Three to UCC, and UCC was, in turn, acquired by Computer Associates shortly afterward. Marilyn moved on, and ISS-Three became part of CA-Unicenter.

Like IS S-Three, NetArchitect is designed to compete with Best/1. Unlike ISS-Three, it runs on a Windows platform (Windows wasn't invented back then), and it has knowledge of routers, T-1 lines, and other communications gear that hadn't yet been invented back then either. It uses a simulation technique rather than a mathematical model.

Capacity-planning tools have been used for a long time in mainframe shops; now they are becoming a necessity as Windows NT scales to the enterprise and clusters of cheap Intel or Alpha processors replace the mainframe. Many shops are encountering with some unhappy surprises when a small increase in workload becomes the proverbial straw that breaks the networked camel's back. And then surprise No. 2 often awaits the unwary when the unbudgeted emergency hardware upgrade makes only a negligible improvement.

Don't like surprises?

Use a capacity-modeling tool and you can avoid those problems. A capacity-modeling exercise involves several steps. First, you need to define the equipment configuration. In the case of NetArchitect, that can be done visually, although the process is not nearly as intuitive as using the Visio drawing tools. Next, you need to define the types of workloads your system carries, such as batch and on-line transactions of various sorts. The experienced modelist will group similar types of workloads together and model only a few categories, such as small, medium, and heavy on-line transactions, rather than model each and every transaction type.

Each workload demands some amount of CPU service, some amount of service from each disk drive, and so on. You need to specify arrival rates for each of these--that is, the number of incoming transactions per hour. From these inputs, you can calculate response time and utilization rates, and (hopefully) verify those against measured data.

Ah, there's the rub. For a long time, IBM mainframes have collected System Management Facility (SMF) and Resource Measurement Facility (RMF) data that report on system utilization and response times. PCs are only now starting to catch up. Windows NT can collect an impressive array of data about its operations, which can be viewed with SMS, but good tools are not yet available to reduce the data so that it's suitable for the capacity

models. Some hand work and experimentation is necessary. And thank God for spreadsheets. Once you've verified that your model can correctly predict the performance during low, average, and peak usage periods, the model is said to be robust and can form the basis for modeling experiments. What, for example, would be the benefit of adding more symmetric multiprocessors? What improvement would you get if you went from 10BaseT to 100BaseT for the backbone? What would happen if you changed from Ethernet hubs to Ethernet switches? You can easily vary configurations and arrival rates to predict what configurations will yield acceptable response times at the lowest cost.

The idea is to prevent system bottlenecks or choke points from clogging the speedy flow of transactions through your system. A benefit of modeling is that it can help you deal with the fact that bottlenecks have a tendency to move through the system, so relieving one can immediately expose another. Like a network of streets and highways, congestion anywhere in the system can cause serious delays at multiple points along your route (although computer systems are not known to experience rubbernecking delays).

The big advantage of PC-based systems lies in their smooth scalability, since capacity increases come in relatively small increments (unlike mainframe upgrades, which can easily run to six figures). This fact, coupled with an unrelenting erosion of prices and a seemingly never-ending parade of newer and better products, suggests a just-in-time approach to capacity upgrades. It's also elementary, our Dear Dr. Watsons, that to do so, you need to monitor performance comprehensively on an ongoing basis.

We've been back to our roots lately in other ways, too. As we struggle to connect our kiosks to municipal databases, we've been revisiting issues of mainframe connectivity. Venerable screen-scraping tools like Wall Data's Rumba Office 9S/NT have been updated to work with server-side technology (Wall Data's Arpeggio Live!) and ActiveX. Even more exciting are the direct interfaces (based on LU 6.2) that extend the capabilities of Microsoft's Transaction Server. Code-named Cedar, the demo CD is very compelling. It lets you establish a direct transactional interface between Microsoft's Transaction Monitor and a CICS-based mainframe while handling the pesky details of two-phase commit for you. Seems like a technology worth watching.

Another interesting new product is COBOL for Windows from Fujitsu. Long a developer of COBOL compilers for mainframes, Fujitsu has come up with a PC-based product that seamlessly integrates COBOL with Windows, ActiveX, and Visual Basic. As the year 2000 looms closer, this product offers a promising bridge from the mainframe to a world of NT-centric enterprise computing.

We end this month's column with a shameless plug for Microsoft's Developer Days, for which we serve as Regional Directors for New York and New Jersey. DevDays, as it's known, is being held simultaneously in more than 70 locations on March 19, 1997, and is expected to attract more than 40,000 people. To register, point your browser at <http://microsoft.com/devdays> or telephone 800-206-3000 or 612-550 6390 by March 5, 1997.

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18/3,K/1 (Item 1 from file: 275)  
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02269962 SUPPLIER NUMBER: 53877382 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Distributed Capacity Planning, Part 2. (Technology Information)**  
Domanski, Bernie  
Enterprise Systems Journal, 14, 2, 66(1)  
Feb, 1999  
ISSN: 1053-6566 LANGUAGE: English RECORD TYPE: Fulltext; Abstract  
WORD COUNT: 3066 LINE COUNT: 00256

...ABSTRACT: s multi-tiered network architectures differ fundamentally from mainframe systems and pose new challenges in **capacity planning**. Backbone-network sensitivity is a major source of bottlenecks because network bandwidth and speed are...

...Available bandwidth on the public network is very sensitive as well. Scalability is crucial for **capacity planning** on distributed systems because a single processor change can cause multiple rollovers. Capacity planners should...

...workloads and acceptable service levels. Questions to ask include the relative importance of each application, **required** availability and performance, current **workload** volumes, whether existing parameters will change over time and whether new applications are planned. Management...

18/3,K/2 (Item 2 from file: 275)  
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02251032 SUPPLIER NUMBER: 53359721  
**Mega Web Sites -- Big Sites Are Becoming The Norm For Companies Doing Commerce On The Web-Bringing A New Set Of IT Challenges. (Internet/Web/Online Service Information)**  
Hibbard, Justin  
InformationWeek, 75(1)  
Dec 7, 1998  
ISSN: 8750-6874 LANGUAGE: English RECORD TYPE: Abstract

...ABSTRACT: resulting in problems for IT departments as they develop the large, complex back-end systems **necessary** to handle the **workload**. Popular Web sites handle more than 100 million page views per day and online sales...

...limited experience in handling highly integrated Web sites. One of the keys to success is **capacity planning**. IT infrastructures capable of handling 24-hour access are becoming similar in size to full...

18/3,K/3 (Item 3 from file: 275)  
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02249509 SUPPLIER NUMBER: 53354298 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Canadian firm at top of anthill. (Silicon Graphics Inc. (SGI) ) (Product Information)**  
Brooks, Andrew  
Computing Canada, 15(1)  
Dec 7, 1998  
ISSN: 0319-0161 LANGUAGE: English RECORD TYPE: Fulltext  
WORD COUNT: 888 LINE COUNT: 00075

... scheduling element which is guided by policies on resource availability, job execution calendaring and, if **necessary**, external events. It also analyzes **workload** data to support **capacity planning** strategies, and monitors and administers computing resources online. It

works in Windows NT and UNIX.  
?t/3,k/4-50

**18/3,K/4 (Item 4 from file: 275)**  
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01852422 SUPPLIER NUMBER: 17603043 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Capacity management for client/server architectures.**  
Domanski, Bernard  
Enterprise Systems Journal, v10, n9, p30(7)  
Sep, 1995  
ISSN: 1053-6566 LANGUAGE: English RECORD TYPE: Fulltext; Abstract  
WORD COUNT: 3415 LINE COUNT: 00301

...ABSTRACT: the past few years. However, many planned systems are not yet in place because of **capacity planning** and resource management issues. Capacity management requires applying a number of different analytical techniques, including...

...and benchmarking. A thorough capacity management analysis will determine what hardware and software will be **required** to support a given **workload**. The process, then, first **requires** the analyst to identify the composition of the workload, and through historical data, to predict...

**18/3,K/5 (Item 5 from file: 275)**  
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01782613 SUPPLIER NUMBER: 16627192 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Capacity planning for C S. (client server) (DB Expo in New York City)**  
Computer Conference Analysis Newsletter, n355, p9(1)  
Dec 20, 1994  
ISSN: 1071-2216 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT  
WORD COUNT: 715 LINE COUNT: 00062

... don't forget the importance of complete documentation -- "build a library and maintain it."

Doing **capacity planning** requires both technical skills and managerial skills. You must develop meaningful metrics for **workloads**, systems capabilities, and projected **needs**.

"Don't just look at the best-case. Look at peak loads and what you..."

**18/3,K/6 (Item 6 from file: 275)**  
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01624874 SUPPLIER NUMBER: 14480986 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Benchmarking middleware. (Alternative Technologies' Database Connectivity Benchmark)**  
Finkelstein, Richard  
DBMS, v6, n12, p82(2)  
Nov, 1993  
ISSN: 1041-5173 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT  
WORD COUNT: 1721 LINE COUNT: 00144

... DCB documentation, however, warns (correctly, in my opinion) that benchmark results are highly dependent on **workload**, application **requirements**, system design, and implementation, and that the DCB should not be used as a substitute for critical **capacity planning**.

The DCB is unique among database benchmarks in the amount of attention it places...

**18/3,K/7 (Item 7 from file: 275)**  
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01512619 SUPPLIER NUMBER: 12039954 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Command performance. (problems in analyzing performance data within Unix)**  
**(Technical)**  
Mead, Harold  
DEC User, p63(1)  
March, 1992  
DOCUMENT TYPE: Technical ISSN: 0263-6530 LANGUAGE: ENGLISH  
RECORD TYPE: FULLTEXT; ABSTRACT  
WORD COUNT: 847 LINE COUNT: 00064

ABSTRACT: Some analysts believe that performance measurement and **capacity planning** are important for systems administrators planning an expanded network. Without proper planning, reaching a performance...

...unit, memory capacity, and input/output device usage. That data must then be applied to **work - load requirements** and analyzed in meaningful business terms. Finally, the calibration of a baseline model is required...

18/3,K/8 (Item 8 from file: 275)  
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01438488 SUPPLIER NUMBER: 10804528 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Streamlining VMS. (Digital Equipment Corp adds new system management capabilities to its proprietary operating system)**  
Shannon, Terry  
DEC User, p16(3)  
March, 1991  
ISSN: 0263-6530 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT  
WORD COUNT: 1894 LINE COUNT: 00164

... the VAX Software Performance Monitor (SPM).  
VPA is a rule-based VMS performance management and **capacity planning** software package. In its current incarnation, it incorporates an expert system for VMS performance analysis...

...frequently-accessed disk files, and a performance modelling component that can be used to project **work - load** growth and system upgrade **requirements**. It already includes **capacity planning** and work-load projection attributes like those of DECcp, disk analysis capabilities comparable to those...

18/3,K/9 (Item 9 from file: 275)  
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01437176 SUPPLIER NUMBER: 10916436 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**The performance road test. (capacity planning with workstations and X terminals) (includes related article on cost of capacity planning) (Cover Story)**  
Coulson, Christopher J.  
DEC Professional, v10, n6, p50(6)  
June, 1991  
DOCUMENT TYPE: Cover Story ISSN: 0744-9216 LANGUAGE: ENGLISH  
RECORD TYPE: FULLTEXT; ABSTRACT  
WORD COUNT: 4130 LINE COUNT: 00327

...ABSTRACT: also determine where bottlenecks will appear and how to resolve them. This requires site-related **capacity planning**. The first step in **capacity planning** is to have an idea of what results to expect. Digital Equipment Corp conducted a...

...can improve performance. Estimating performance and configuration needs requires knowing the impact of the real **workload**. The number of disks

**needs** to be maximized and I/O load balanced over all spindles to achieve best...

...a diskless environment. Monitoring activities of users, collecting related data and using this information with **capacity planning** tools will result in accurately anticipating computing needs.

... results of these tests show, the proliferation of workstations and X terminals creates a new **capacity planning** challenge because of the complexities of distributed computing and variable workloads. It is more important...

...carefully and to collect related data. This data can then be used in conjunction with **capacity planning** tools to simulate and prepare for future **workloads**, accurately anticipating computing **needs**. -Christopher J. Coulson is a consultant to the Information Systems Business Group of Digital Equipment Corporation. The Dollars And Cents Of **Capacity Planning**

Historically, the principal method of capacity planning has been to analyze hardware performance (CPU and...

**18/3,K/10 (Item 10 from file: 275)**  
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01400690 SUPPLIER NUMBER: 10731325  
**Getting the best for your buck. (managing data centers efficiently) (Inside Edge)**  
Lalor, Thomas Jr.  
Computerworld, v25, n19, p76(1)  
May 13, 1991  
ISSN: 0010-4841 LANGUAGE: ENGLISH RECORD TYPE: ABSTRACT

...ABSTRACT: efficient. Managers facing budget cuts need to meet ever-increasing service demands with less money. **Capacity planning** involves assessing **work load** and corresponding **needs**, while service-level analysis focuses on reliability and availability. The three options for those seeking...

**18/3,K/11 (Item 11 from file: 275)**  
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01388652 SUPPLIER NUMBER: 09414114 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Performance measures. (computer performance evaluation)**  
Hinnant, David  
UNIX Review, v8, n12, p34(7)  
Dec, 1990  
ISSN: 0742-3136 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT  
WORD COUNT: 3836 LINE COUNT: 00319

... development of specific workloads. To this end, the group is investigating the possibilities for developing **requirements** for specific functional **workloads** (office automation, transaction processing, etc.). The group is also involved in standardizing system activity reporting...

...and other conferences and trade shows. Topics covered in past sessions include RTEs, workload characterization, **capacity planning**, and commercial benchmarks. The group usually meets once a year during the winter UniForum conference...

**18/3,K/12 (Item 12 from file: 275)**  
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01380306 SUPPLIER NUMBER: 08714994 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Why CASE should extend into software performance. (computer-aided software**

**engineering)**

Smith, Connie U.; Williams, Lloyd G.

Software Magazine, v10, n9, p49(8)

July, 1990

ISSN: 0897-8085

LANGUAGE: ENGLISH

RECORD TYPE: FULLTEXT; ABSTRACT

WORD COUNT: 4601

LINE COUNT: 00394

... and the tools that support them emerged from the technical areas of performance evaluation and **capacity planning** [C.U. Smith, "Evolution of Software Performance Engineering: A Survey," Proceedings of the Fall Joint ...

...to characterize workloads and calibrate the model to match existing performance metrics. They examine future **needs** by using forecasts of future **workload** volumes and resource **requirements**, and study hardware configurations that will satisfy those needs.

Initial applications of SPE supplemented capacity...

**18/3,K/13 (Item 13 from file: 275)**

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01358948 SUPPLIER NUMBER: 08182258 (USE FORMAT 7 OR 9 FOR FULL TEXT)

**DP to finance: we have to talk. (data processing; includes related article 'tools help capacity planning')**

Thewlis, David C.

Software Magazine, v10, n1, p47(6)

Jan, 1990

ISSN: 0897-8085

LANGUAGE: ENGLISH

RECORD TYPE: FULLTEXT; ABSTRACT

WORD COUNT: 2595

LINE COUNT: 00212

... service, but to ensure that the service is distributed according to the specific system plan.

**Capacity Planning** is the process of ensuring that enough aggregate service is available to meet current and...

...concept is "as economically as possible." Obviously, most computing can be sized larger than their **workload requirements**, and thus guarantee that they meet their performance goals. But this is not the most...

**18/3,K/14 (Item 14 from file: 275)**

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01295854 SUPPLIER NUMBER: 07242494 (USE FORMAT 7 OR 9 FOR FULL TEXT)

**How IBM experience can help VAX planners. (installing capacity planning expertise in VAX-VMS MIS shops) (buyers guide)**

Kolence, Kenneth W.

Software Magazine, v9, n5, p49(7)

April, 1989

DOCUMENT TYPE: buyers guide

ISSN: 0897-8085

LANGUAGE: ENGLISH

RECORD TYPE: FULLTEXT; ABSTRACT

WORD COUNT: 3169

LINE COUNT: 00257

... capable of providing the service needed, along with the proper planning needed to acquire it.

**Capacity planning** involves, at a minimum, classifying and forecasting the future workloads, identifying the service and/or response time **requirements** of critical **workload** elements, and determining and/or designing configurations which will meet these service requirements. This should...

**18/3,K/15 (Item 15 from file: 275)**

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01232355 SUPPLIER NUMBER: 06253392

**Network demand strains service delivery. (in Performance Management Tools supplement)**

Marinstein, Jeff

Computerworld, v22, n9, pS16(1)

Feb 29, 1988

ISSN: 0010-4841

LANGUAGE: ENGLISH

RECORD TYPE: ABSTRACT

...ABSTRACT: to standards. Software performance engineering is recommended for the improvement of new applications. A formal **capacity planning** network study will allow companies to better prepare for greater user **demands** and new **work loads**; expert systems is a promising technology in this area. The goal is to have a...

**18/3,K/16 (Item 16 from file: 275)**

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01198556 SUPPLIER NUMBER: 05260311

**Fourth costs may cancel out savings. (fourth generation languages)**

Wardropper, Jill

Computer Weekly, n1063, p1(2)

May 14, 1987

ISSN: 0010-4787

LANGUAGE: ENGLISH

RECORD TYPE: ABSTRACT

...ABSTRACT: computer funds allocations, which will establish an approach for managing government computing. It recommends "that **capacity planning** (insuring that enough computer resources are available to meet the **required workload**) should be introduced" and that 4GLs be used especially for new projects.

**18/3,K/17 (Item 17 from file: 275)**

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01165927 SUPPLIER NUMBER: 04366203

**Planning and management. (Part 1)**

Snyders, Jan

Infosystems, v33, n6, p80(1)

June, 1986

ISSN: 0364-5533

LANGUAGE: ENGLISH

RECORD TYPE: ABSTRACT

ABSTRACT: Various software tools can be used for **capacity planning** and management. The Mics product from Morino & Assoc will allow the user to determine the...

...quantifying current capacity on the existing system; also, it will analyze and quantify the service **needs** of the resources by **work - load** mix, and then it will locate performance problems.

**18/3,K/18 (Item 1 from file: 47)**

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04724283 SUPPLIER NUMBER: 19205703

(USE FORMAT 7 OR 9 FOR FULL TEXT)

**Back to our roots. (Capacity planning tools are becoming a necessity.)**

**(Technology Information)**

Sarna, David E.Y.; Febish, George J.

Datamation, v43, n3, p25(2)

March, 1997

ISSN: 0011-6963

LANGUAGE: English

RECORD TYPE: Fulltext; Abstract

WORD COUNT: 1091 LINE COUNT: 00088

...ABSTRACT: basis to take advantage of the scalability and relative low

cost of PC-based systems. **Capacity - planning** tools have been used for quite some time in the mainframe environment and now they...

...several steps, the first being to define the equipment configuration. Next, define the types of **workloads** your system carries. Each **workload demands** some amount of CPU service, the response time and utilization rates can be calculated from...

18/3,K/19 (Item 1 from file: 160)  
DIALOG(R)File 160:Gale Group PROMT(R)  
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01931030

**Tandem adds system analyzer**

Computerworld May 23, 1988 p. 28  
ISSN: 0010-4841

... a system that analyses a fault-tolerant system's performance information to aid in future **capacity planning** and identification of potential problems. The Surveyor analyses specific **work loads** to determine the resource **requirements** of tasks. The reports produced by Surveyor, either on demand or at user-specified intervals...

... identify potential problems and the conditions that cause them. The reports can also help in **capacity planning** as they track how the system's work load is growing. Surveyor will be available...

18/3,K/20 (Item 2 from file: 160)  
DIALOG(R)File 160:Gale Group PROMT(R)  
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01873562

**Network demand strains service delivery**

Computerworld February 29, 1988 p. S16  
ISSN: 0010-4841

...range systems and strictly enforce the standards. Firms should avoid proprietary networks. Firms should perform **capacity planning**, perhaps by using an expert system, to determine future user **needs** and system **work loads**. Using software performance engineering techniques, firms should determine the effect of changes in software on...

18/3,K/21 (Item 1 from file: 148)  
DIALOG(R)File 148:Gale Group Trade & Industry DB  
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10150315 SUPPLIER NUMBER: 20540667 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Understanding the roles of CSM, PDM, and ERP in product development.**

(Component and Supplier Management; Product Data Management; Enterprise Resource Planning) (Special Report: Electronic Design Automation)

Althoff, James

Electronic Design, v46, n6, p82(2)

March 9, 1998

ISSN: 0013-4872 LANGUAGE: English RECORD TYPE: Fulltext; Abstract  
WORD COUNT: 1241 LINE COUNT: 00104

... within ERP systems include order entry and purchasing execution, inventory management, master production scheduling, materials **requirements planning** (MRP), and **workload** and **capacity planning**.

Where The Savings Begin

The pervasiveness of components in finished products means that a CSM

...

18/3,K/22 (Item 2 from file: 148)

DIALOG(R)File 148:Gale Group Trade & Industry DB  
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09043619 SUPPLIER NUMBER: 18781730 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**'Just-in-time' production of large assemblies.**  
Agrawal, Ashutosh; Harhalakis, G.; Ioannis, Minis; Nagi, Rakesh  
IIE Transactions, v28, n8, p653(15)  
August, 1996  
ISSN: 0740-817X LANGUAGE: English RECORD TYPE: Fulltext; Abstract  
WORD COUNT: 9950 LINE COUNT: 00817

... the order can be accepted or some changes in the shipping schedule are required. Traditional **capacity planning**, which accounts only for the set-up and run times of operations, may not be...and thus promised due-dates, because it calculates these data based on the actual production **requirements** and the actual **workload** on the shop floor.

6. Conclusions

This paper addressed an important practical problem: the scheduling...

18/3,K/23 (Item 3 from file: 148)  
DIALOG(R)File 148:Gale Group Trade & Industry DB  
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08752690 SUPPLIER NUMBER: 18323245 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Bringing design and procurement together. (product-design engineers; purchasing staff) (includes related article)**  
Palmer, Craig  
Mechanical Engineering-CIME, v118, n4, p77(3)  
April, 1996  
ISSN: 0025-6501 LANGUAGE: English RECORD TYPE: Fulltext; Abstract  
WORD COUNT: 2158 LINE COUNT: 00187

... demand. Typical functions within ERP systems include order entry and purchasing execution, inventory management, materials- **requirements** planning, and **workload** and **capacity planning**. ERP systems generally are operational and heavily transaction-oriented.

PDM systems link design and manufacturing...

18/3,K/24 (Item 4 from file: 148)  
DIALOG(R)File 148:Gale Group Trade & Industry DB  
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06376241 SUPPLIER NUMBER: 13112981 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**INSTRUMENTAL ANNOUNCES FIRST ORDERS FOR UNIX PERFORMANCE MONITORING SOFTWARE**  
PR Newswire, 0209MN003  
Feb 09, 1993  
LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT  
WORD COUNT: 563 LINE COUNT: 00047

... Reagan Moore said, "The statistics we can obtain with PerfStat are essential for understanding our **workload**'s I/O **requirements**. This will enable us to do a much better job of I/O **capacity planning** for our pending Cray Y-MP C90 installation, which will ensure we get the most...

18/3,K/25 (Item 1 from file: 553)  
DIALOG(R)File 553:Wilson Bus. Abs. FullText  
(c) 2002 The HW Wilson Co. All rts. reserv.

02311633 H.W. WILSON RECORD NUMBER: BWBA92061633  
**Better capacity planning.**  
Jinks, Daniel W  
Information Systems Management (Inf Syst Manage) v. 8 (Fall '91) p. 76-9  
LANGUAGE: English

ABSTRACT: Capacity modeling has traditionally been viewed as the critical task in estimating future computing **needs**, but the **work load** estimates that form a model's underlying assumptions are often unreliable. One method for improving **capacity planning** is to optimize input and focus on results analysis. Key factors for better **capacity planning** are improved work load estimates, simplified computer models, and the use of a sensitivity analysis. By fine-tuning the **capacity planning** process, organizations can gain more accurate capacity forecasts and a more efficient planning process, which will free up information systems staff members for other projects. Guidelines for improving the **capacity planning** process are presented.

18/3,K/26 (Item 1 from file: 88)  
DIALOG(R)File 88:Gale Group Business A.R.T.S.  
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04654291 SUPPLIER NUMBER: 20324310

**Analytical performance modeling of hierarchical mass storage systems.**  
Pentakalos, Odysseas I.; Menasce, Daniel A.; Halem, Milton; Yesha, Yelena  
IEEE Transactions on Computers, v46, n10, p1103(16)  
Oct, 1997  
ISSN: 0018-9340 LANGUAGE: English RECORD TYPE: Abstract

ABSTRACT: A queuing network model is proposed for hierarchical computer mass storage system **capacity planning**. Resource **demand** and **workload** intensity parameters for different systems were determined by measuring a Unitree mass storage system and...

18/3,K/27 (Item 2 from file: 88)  
DIALOG(R)File 88:Gale Group Business A.R.T.S.  
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02079721 SUPPLIER NUMBER: 06905511

**An empirical study of computer capacity planning in Japan.**  
Lam, Shui F.  
Communications of the ACM, v31, n8, p965(12)  
Aug, 1988  
ISSN: 0001-0782 LANGUAGE: English RECORD TYPE: Fulltext; Abstract  
WORD COUNT: 3336 LINE COUNT: 00320

ABSTRACT: Computer installation managers must be able to analyze current **workloads**, forecast future **demand**, and plan future data processing capacity. Methods of computer **capacity planning** (CCP) in Japan and the US are compared. The US has more advanced CCP tools...

TEXT:

AN EMPIRICAL STUDY OF COMPUTER **CAPACITY PLANNING** IN JAPAN The advance in electronic technology has significant impact on the business community. Computer...

...managers to understand their applications and growth environments sufficiently to analyze the contents of current **workload**, to forecast the future **demand**, and to plan future data processing capacity to meet the needs of the business. Monitoring...

...satisfy the future demand in a cost-effective manner is generally referred to as computer **capacity planning** (CCP). The term capacity as used in this article refers to the capacity of the...

18/3,K/28 (Item 1 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
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02329186 86926393

**Optimization of maintenance organization and manpower in process industries**

Knapp, Gerald M; Mahajan, M  
Journal of Quality in Maintenance Engineering v4n3 PP: 168-183 1998  
ISSN: 1355-2511 JRNL CODE: QMGR  
WORD COUNT: 4982

...TEXT: to be precise. Dijkstra et al. (1991; 1994) developed a decision support system (DSS) for **capacity planning** of aircraft maintenance personnel. The DSS is used to guarantee that sufficient engineers with appropriate...

... organization of the maintenance workforce in the identical and smallest possible teams to match the **required workload**. This would not be an efficient use of the resources in many plants. Duffuaa and...

18/3,K/29 (Item 2 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
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01197763 98-47158

**Building information bridges**

Anonymous

Mechanical Engineering v118n4 PP: 78 Apr 1996

ISSN: 0025-6501 JRNL CODE: MEG

WORD COUNT: 307

...TEXT: demand. Typical functions within ERP systems include order entry and purchasing execution, inventory management, materials- **requirements planning**, and **workload** and **capacity planning**. ERP systems generally are operational and heavily transaction-oriented,

PDM systems link design and manufacturing...

18/3,K/30 (Item 3 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
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01189418 98-38813

**Client/server capacity planning and hardware resource usage metrics, trends, and relationships**

Major, Joe

Capacity Management Review v24n2 PP: 3-9 Feb 1996

ISSN: 0091-7206 JRNL CODE: PPR

WORD COUNT: 4620

ABSTRACT: The 5th installment in a series on the uses of quantitative methods in client/server **capacity planning**, focusing on specific resource usage metrics, trends, and relationships, is presented. Reasonability tests that a...

... hardware resource requirements forecasts are addressed. Capacity planners might have to estimate the hardware resource **requirements** of future **workloads** under 4 scenarios: 1. same platform as today, with more work of the current type...

18/3,K/31 (Item 4 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
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01146067 97-95461

**Client/server capacity planning, part IV - Client/server capacity planning and software evolution: Software functionality dynamism**

Major, Joe

Capacity Management Review v23n11 PP: 3-6 Nov 1995

ISSN: 0091-7206 JRNL CODE: PPR

WORD COUNT: 1351

...TEXT: It is grafted upon a previous version of the product at a significant performance penalty. **Workload** resource usage growth eventually **requires** parallel implementations. Otherwise, hardware capacity cannot be effectively exploited. **Capacity planning** must include provisions for the exploitation of hardware parallelism. (Editor's note: see the related...

18/3,K/32 (Item 5 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
(c) 2002 ProQuest Info&Learning. All rts. reserv.

01134045 97-83439  
**Client/server and workload characterization**  
Howard, Phil  
Capacity Management Review v23n10 PP: 17-22 Oct 1995  
ISSN: 0091-7206 JRNL CODE: PPR  
WORD COUNT: 2208

TEXT: In many respects, **capacity planning** in the client/server world is not that much different from the **capacity planning** that we have become quite good at for mainframe systems. The whole idea of workload forecasting and characterization, for example, is very similar. Workload forecasting for client/server does not **require** any particular new insights over **workload** forecasting for traditional legacy systems. Whether mainframe or client/server, the mechanisms used to map...

18/3,K/33 (Item 6 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
(c) 2002 ProQuest Info&Learning. All rts. reserv.

01114626 97-64020  
**Service level management in enterprise systems**  
Howard, Phil  
Capacity Management Review v23n9 PP: 1, 14+ Sep 1995  
ISSN: 0091-7206 JRNL CODE: PPR  
WORD COUNT: 2731

...TEXT: make sure that all of the participants understand the realities of the current computing environment.

**Capacity planning** . The **capacity planning** process is needed to make sure that service levels will continue to be met in the future. Specifically, given the **required** service levels and projected future **workloads** , will more capacity be **required** ? Will changes in the business plan translate into changes in IT capacity? Also, if the...

18/3,K/34 (Item 7 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
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00854365 95-03757  
**The capacity management discipline's changing future**  
Domanski, Bernard  
Capacity Management Review v22n4 PP: 6-8 Apr 1994  
ISSN: 0091-7206 JRNL CODE: PPR  
WORD COUNT: 1829

ABSTRACT: The future of the **capacity planning** (CP) profession is discussed. CP has traditionally consisted of 4 disciplines. As computing technologies evolve...

... understanding what the workloads are as they execute on new platforms,  
3. forecasting these new **workloads** so that resource **requirements** can be found, and 4. predicting the performance and service levels end-users

who have...

TEXT: Traditionally, **capacity planning** has consisted of 4 disciplines: finding adequate data sources, workload characterization, workload forecasting, and performance...

... the workloads are as they execute on new platforms (and across platforms), forecasting these new **workloads** so that resource **requirements** can be found, and predicting the performance and service levels end-users who've submitted...

... are defined, expected service levels such as response time are defined as well.

From the **workload** resource **requirements** along with projections as to the quantity of work to be processed, we can use...

... to predict actual service levels for different physical configurations. One of the primary goals of **capacity planning** is to build a capacity plan that defines, for each quantity of workload (volume of transactions) expected into the future, what different physical configuration is **necessary** to handle the **workload**. For example, (as depicted in Figure 1 [figure omitted]) when my existing workload doubles in...

18/3,K/35 (Item 8 from file: 15)  
DIALOG(R) File 15:ABI/Inform(R)  
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00746973 93-96194

#### **Performance of distributed UNIX systems**

Anonymous

Capacity Management Review v21n7 PP: 6-8 Jul 1993

ISSN: 0091-7206 JRNL CODE: PPR

WORD COUNT: 1361

...TEXT: and,

\* change the scheduling priorities to improve response time.

#### **CAPACITY PLANNING**

Again, the goal for **capacity planning** is much the same as it is for the mainframe, to determine an effective and...

... the desired service level for the anticipated load. The tasks involved are characterization of current **workloads**, projecting growth, forecasting future **needs**, and assessing the impacts of changes. The methodologies will also sound familiar: benchmarking, simulation (rarely...

18/3,K/36 (Item 9 from file: 15)  
DIALOG(R) File 15:ABI/Inform(R)  
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00733731 93-82952

#### **A comprehensive review of production lot-sizing**

Eftekharzadeh, Reza

International Journal of Physical Distribution & Logistics Management

v23n1 PP: 30-44 1993

ISSN: 0960-0035 JRNL CODE: IPD

WORD COUNT: 11716

...TEXT: and assemblies as specified by the MRP plan and the master production schedule. These procedures, **capacity planning** using overall factors CCPOF), capacity bills (CB), resource profiles (RP), and capacity requirement planning (CRP... but increased capacity deviations under accurate time standards, reduced planned lead time settings, and lumpy **work loads**. RP also **requires** shorter time periods than CPOF. Under

most conditions the use of in combination with...

18/3,K/37 (Item 10 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
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00608896 92-23999

**Making Capacity Management Work**

Anonymous

Capacity Management Review v20n3 PP: 7, 9 Mar 1992

ISSN: 0091-7206 JRNL CODE: PPR

WORD COUNT: 1228

...ABSTRACT: with other planning activities, such as application development planning, network planning, and hardware acquisition negotiations. **Capacity planning** is defined as the process by which a computer **workload** forecast is transformed into resource **requirements** that meet information systems (IS) service commitments. Two ways of assessing the demands on system...

... the current workload and the forecasting of future workloads. Service levels are another area where **capacity planning** impacts the rest of the organization. Service level agreements are negotiated between the data center...

...TEXT: consultant with Deloitte & Touche, focused on these organizational interfaces as the key to strengthening the **capacity planning** function. Overall, Soder depicted the hierarchy of DP planning functions as shown in Figure 1. (Figure 1 omitted) Specifically, he defines **capacity planning** as the process by which a computer **workload** forecast is transformed into resource **requirements** which meet IS service commitments. The major IS planning issues involve application workload planning (workload...

18/3,K/38 (Item 11 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
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00596133 92-11306

**Capacity Planning: More than Sizing CPUs**

Anonymous

Capacity Management Review v20n1 PP: 7-8 Jan 1992

ISSN: 0091-7206 JRNL CODE: PPR

WORD COUNT: 1501

ABSTRACT: The classical approach to **capacity planning** usually incorporates the following steps: 1. Determine current resource loading, service levels, and the amount...

... in the existing workload. 3. Identify new workloads and estimate volumes. 4. Estimate the resource **requirements** of new **workloads**. 5. Predict resultant total resource loading and service levels. 6. Derive changes in available resources...

...TEXT: requirement," as depicted in Figure 1. (Figure 1 omitted) You will have to redirect your **capacity planning** efforts to cope with new applications; major changes can occur without much planning. Capacity plans ...

... appropriate platform. Actually, this is not inconsistent with steps three and four of the classical **capacity planning** approach outlined at the beginning of this article. It still involves identifying and estimating the volumes of new **workloads** and estimating resource **requirements**.

In this new environment, you will have to recognize economic issues. For example, workstation application...

18/3,K/39 (Item 12 from file: 15)

DIALOG(R)File 15:ABI/Inform(R)  
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00560534 91-34891

**Capacity Planning and the Changing IS Environment**

Anonymous

Capacity Management Review v19n6 PP: 1-5 Jun 1991

ISSN: 0091-7206 JRNL CODE: PPR

WORD COUNT: 3966

**ABSTRACT:** **Capacity planning** is an accepted management function in many large information systems (IS) shops and, in fact...

... and even the strategic direction of the business. One of the most basic steps in **capacity planning** is to gain access to an organization's business plan so that the parts of...

... find the business drivers - those key variables that drive IS resource consumption. Characterizing and forecasting **workload requirements** and translating these into capacity plans are only part of the job. Planners must also...

**18/3,K/40 (Item 13 from file: 15)**

DIALOG(R)File 15:ABI/Inform(R)

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00494304 90-20061

**An Assessment of Capacity Management**

Wise, Timothy M.

Internal Auditing v5n4 PP: 75-81 Spring 1990

ISSN: 0897-0378 JRNL CODE: IAD

...**ABSTRACT:** resources and projecting future resource requirements, consists of 3 elements: service management, performance management, and **capacity planning**. Service management focuses on providing acceptable service to users through the identification of service indicators...

... data center to assess current performance and identify and implement system adjustments to increase performance. **Capacity planning** concentrates on determining the resources **required** to process future **workloads** and satisfy service levels. An audit approach for reviewing capacity management involves reviewing directives and...

**18/3,K/41 (Item 14 from file: 15)**

DIALOG(R)File 15:ABI/Inform(R)

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00482929 90-08686

**The Interface Between SSADM and Capacity Planning**

David, Alun

EDP Performance Review v17n11 PP: 1-5, 8-9 Nov 1989

ISSN: 0091-7206 JRNL CODE: PPR

**ABSTRACT:** In 1986, the Central Computer and Telecommunications Agency undertook a study of interfacing **capacity planning** tools with the British Government's Structured Systems Analysis and Design Method (SSADM). The project...

... models, such as one to identify and describe entities within SSADM that are related to **capacity planning** and another to establish the entities comprising the inputs **necessary** to construct **workload** base models for each **capacity planning** tool. Researchers concentrated on transaction processing workloads under ATHENE, an analytical modeling package that **requires** only coarse detail for its **workload** inputs and is simple in design. The study revealed that SSADM can be interfaced with **capacity planning** tools and that such an interface should prove beneficial to

applications development and system...

18/3,K/42 (Item 15 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
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00407951 88-24784

**Service Level Management**

Vincent, David R.  
EDP Performance Review v16n4 PP: 3, 7-8 Apr 1988  
ISSN: 0091-7206 JRNL CODE: PPR

...ABSTRACT: response time objectives and end-user acceptance of their responsibility in the forecasting of future **workload demands**. This will result in business efficiencies and effectiveness brought about by the **capacity planning** efforts. ...

18/3,K/43 (Item 16 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
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00378847 87-37681

**MIS: You Can't Control What You Can't Measure!**

Wexler, Steve  
ComputerData v12n10 PP: 8-9, 11 Oct 1987  
ISSN: 0025-9535 JRNL CODE: CPD

ABSTRACT: Shrinking budgets and increasing **workloads demand** better management information systems (MIS) **workload** management. **Capacity planning** and performance monitoring can provide this control. Although a major portion of Canada's IBM Corp. mainframe and plug-compatible community uses computer measuring, the growth in measurement and **capacity planning** has not kept pace with the growth in hardware and millions of instructions per second...

... computer measurement is becoming more expensive due to higher salaries and more expensive tools. The **capacity planning** market can be divided into 4 segments: 1. those who neither measure nor plan, 2...

18/3,K/44 (Item 17 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
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00343420 87-02254

**Capacity Management Update**

Anonymous  
EDP Performance Review v14n11 PP: 1-9 Nov 1986  
ISSN: 0091-7206 JRNL CODE: PPR

...ABSTRACT: Capacity Management Services Ltd. In another session, 2 speakers said that the main goal of **capacity planning** is to give service to users, which, in turn, supports business **needs**. Topics included: 1. identifying **workloads**, 2. reviewing past patterns and trends in capacity requirements, 3. forecasting, and 4. comparing system ...

18/3,K/45 (Item 18 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
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00324997 86-25411

**Planning and Management (Part 5)**

Snyders, Jan  
Infosystems v33n6 (Part 1) PP: 80 Jun 1986

ABSTRACT: Three vendors supplied definitions of **capacity planning** and management and how each firm's product fits into this category. Mics, a **capacity planning** system from Morino & Associates, allows users to establish a base line, includes performance management, and...

... based modeling tool and can recommend the least costly alternative to meet the user's **workload requirements**. Boole & Babbage's CMS/Model 300 creates detailed characterization of an multiple virtual storage environment and analyzes and quantifies the service **requirements** of those resources by **workload** mix. CMS/Model 300 also identifies bottlenecks and enables the user to test specific activities...

18/3,K/46 (Item 19 from file: 15)

DIALOG(R)File 15:ABI/Inform(R)

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00306926 86-07340

#### **Benefits of Capacity Planning**

Garth, Mike

Data Processing v27n10 PP: 9-12 Dec 1985

ISSN: 0011-684X JRNL CODE: DTP

...ABSTRACT: a computer system depends on correct sizing and configuring of equipment. A disciplined approach to **capacity planning** requires that 5 capabilities must be established at the start: 1. mechanisms for establishing and...

... achieved, 3. a means of predicting future loads, 4. a method of assessing future hardware **needs**, and 5. tracking procedures for **workload**, resource use, and service levels. The use of modeling tools allows the system designers to...

18/3,K/47 (Item 20 from file: 15)

DIALOG(R)File 15:ABI/Inform(R)

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00263702 85-04135

#### **Methods for Using Information for Capacity Planning**

Komajda, R. J.; Kulik, Constance; Sprung, James G.

EDP Performance Review v12n11 PP: 1-7 Nov 1984

ISSN: 0091-7206 JRNL CODE: PPR

...ABSTRACT: planners have a large amount of information on which to draw on for making decisions. **Capacity planning** is used to evaluate growth in the **demands** of existing **workloads**. **Capacity planning** is a 5-step process, consisting of: 1. identifying all workloads to be supported by the computer system, 2. profiling resource **demands** and time interdependencies for each **workload**, 3. aggregating the **workloads**, 4. determining aggregate resource **requirements**, and 5. selecting equipment to match the aggregate resource requirements. **Capacity planning** can also be used to reevaluate the capacity requirements in the planned addition of an...

18/3,K/48 (Item 21 from file: 15)

DIALOG(R)File 15:ABI/Inform(R)

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00119110 80-13061

#### **Capacity Management and Planning-Part 2**

Howard, Philip C.; Carlson, Gary; Christensen, Jim

EDP Performance Review v8n6 PP: 1-7 Jun 1980

ISSN: 0091-7206 JRNL CODE: PPR

ABSTRACT: The **capacity planning** process, as seen by Dr. LeRoy Bronner in a recent issue of the IBM Systems...

... 3. forecasting for both user and data processing, and 4. analysis and reporting. Resource utilization, **workload** characterization, availability, and user service **requirements** are all critical to understanding computer system capacity. The use of measurement tools, reports, and performance data is also a key part of the **capacity planning** process. **Capacity planning** is a cyclic and ongoing process that integrates the following: 1. data processing management, 2...

... s Understanding Your Application and Growth Environment (USAGE) methodology provides an approach to understanding current **workload** and forecasting future **workload requirements**. A recent International Conference on Computer Capacity Management focused on user services, a case study...

18/3,K/49 (Item 22 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
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00114357 80-08257  
**A Capacity Planning Methodology**  
Cooper, J. C.  
IBM Systems Journal v19n1 PP: 28-45 1980  
ISSN: 0018-8670 JRNL CODE: ISY

...ABSTRACT: workload, and to plan future data processing capacity to meet the needs of the business. **Capacity planning** for the central processing unit (CPU) is critical. One methodology for the comparison of CPU capacity and **workload requirements** is called Understanding Your Application and Growth Environment (USAGE). USAGE focuses on the processor resource...

...the future workload on the system. It is a good place to start in the **capacity planning** of an installation since it allows the various business elements to be individually measured and...

18/3,K/50 (Item 23 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
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00114356 80-08256  
**Overview of the Capacity Planning Process for Production Data Processing**  
Bronner, L.  
IBM Systems Journal v19n1 PP: 4-27 1980  
ISSN: 0018-8670 JRNL CODE: ISY

...ABSTRACT: systematic approach for understanding and predicting the capacity of production data processing systems is computer **capacity planning**. **Capacity planning** brings together many of the past performance management ideas and integrates them with current performance ...

...collected to characterize the workload, the software components, and the hardware components, 2. the parameters **required** to forecast future **workloads** and system performance, 3. the parameters required to collect, analyze, and report data items, and...

...should manage his installation on a continuing basis, using data and the results of analysis. **Capacity planning** is more than a data gathering and performance prediction exercise. It is an integration of...  
... tools, data collection and reporting, workload characterization, and system modeling and performance prediction. A good **capacity planning** program is important to the understanding and management of today's complex data processing environments.

22/9/5 (Item 5 from file 275)  
DIALOG(R) File 275:Gale Group Computer DB(TM)  
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01685648 SUPPLIER NUMBER: 15399378 (THIS IS THE FULL TEXT)  
**Divide and conquer. (developing client/server applications) (Tutorial)**  
Naecker, Philip A.  
DEC Professional, v13, n6, p28(6)  
June, 1994  
DOCUMENT TYPE: Tutorial ISSN: 0744-9216 LANGUAGE: ENGLISH  
RECORD TYPE: FULLTEXT; ABSTRACT  
WORD COUNT: 2777 LINE COUNT: 00217

**ABSTRACT:** Developing client/server applications requires careful planning. Programmers need a minimum of an application development environment (ADE) that can be used to create GUIs and a relational database that provides remote access to desktop devices. The functional design of the database should be created before more detailed issues, such as indexing, are addressed. Programmers should next define the major processes that will access the database. Estimates should be made regarding the frequency of database transactions and the number of records expected in each table. Control of user access and other security concerns for the database and target application should also be considered. Programmers need to consider the user interface elements and where to embed application logic. After the layering model is reanalyzed, development of the target application may begin.

**TEXT:**

In the client/server model of computing, all elements of an application are clearly separated from one another and connected via the network. Breaking an application into these multiple components helps you build the application as a set of separate clients and servers, enabling you to develop a client/server application that can adapt well to the platform, network and database of your choice.

THE POTENTIAL BENEFITS of a successful client/server computing environment are so large that they outweigh the substantial startup costs of developing your first client/server application. A well-designed client/server application will be more flexible to deploy, because it will have few dependencies on the client, server or network; be scalable from a few to a few thousand simultaneous users; and be supportable over a long life of different hardware and software platforms.

Client/server is a catch-all phrase that can refer to many kinds of applications. In this article, we'll limit our discussion to client/server applications that allow a user on a desktop device to access remote applications without the loss of the local look and feel.

To develop a good client/server application of this kind, you need at a minimum an application development environment (ADE) capable of building graphical user interfaces and a relational database that can provide remote access to desktop devices. The better ADEs also provide you with a way to operate interchangeably on different platforms or with different databases.

For example, I have built several client/server applications using Vision from Sapiens International Inc. This tool generates applications that can be executed without any kind of compilation or translation on several different kinds of platforms, including workstations and Windows NT machines. The connection to the database is via a mechanism called Logical Database (LBD). Using LBD, you can easily convert an application from one database type to another, or to RMS files, as long as you don't depend on the particular behavior of the database system. All the leading client/server development environments have similar functionality, some better than others.

Once you decide that you want to use a client/server approach, you can expect to spend a lot of time choosing tools and gaining skills. Be careful in the selection of client/server tools; make sure that the tool you choose will play well with your previous choices for platforms, network and databases.

**Mashing the Myths**

There are several common myths about client/server computing:

Myth 1: A server is always a big, dedicated machine. This is not

true. A server may be a small machine. The size of the machine is determined by the difficulty of the workload, not by which way the arrows point in a data flow diagram. A well-designed server need not be dedicated, either. A single machine can serve files or disks, print queues, or network communications. It can also provide time, directory and name services and host user applications -- all at once.

Myth 2: A client is always a small desktop machine. This is also not true. A client may be a very large machine requesting a service from a small special-purpose machine. The client is simply the machine that requests the service from the network, and it may be much larger than the server.

For example, in networks that I design, I include a small, dedicated server machine (outside of a VMScluster if the environment is OpenVMS) that is set up to be very stable. I rarely need to change either the hardware or the software of the server configuration to improve stability. This server then provides many important network services such as outside network connectivity, name services, network monitoring, and other services that must continue to work when bigger machines are unavailable. The clients for these services are typically much larger machines than the server that provides them.

Myth 3: Clients request data, and servers provide it. Many kinds of services consume data instead of providing it. For example, a print server provides printing resources to the network and is generally a data sink rather than a data source. A compute server might require only one number as input and produce one number as output. A log server might just consume data and not provide any output. An X terminal serves and X screen to the network. I like to think of it as a bitmap server, and the program that does that is called, not coincidentally, "the X Server."

Myth 4: Client/server application development is difficult. Difficult compared with what? Compared with the development of applications using traditional, monolithic 3GLs and accessing RMS files, it is difficult. If that's what you're currently doing, you have quite a culture change ahead of you. But if you already use 4GLs, relational databases and fairly modern software engineering practices, the transition is probably not as difficult as people make it out to be. There are some gotchas, but the benefits often far outweigh the costs.

Brother, Can You Spare A Paradigm?

If you can think of clients and servers as big machines/little machines or data sources/sinks, then how can you structure your thinking? I prefer a layering diagram such as that are shown, but almost every application has a user display, user interface layer and database access layer.

You can break an application into multiple client and server components by dividing at one or more of the boundaries between the layers (see Figures 2 and 3). Several applications execute the different layers on at least three different machines. The advantage of the layering paradigm for thinking about client/server application development is that this approach will help you keep functionality localized and thereby maximize your flexibility.

For example, if you make sure that the user interface toolkit works with multiple database vendors, you can integrate data from several different databases at the user interface. For example, you might design an accounting application but later find you also need human resources data, which is stored in a database from a separate vendor.

Conversely, if a single database can be accessed by several different user interfaces, then you can easily provide customized user interfaces for different groups of users or on different platforms. For example, you might have a regular user interface on all your desktop platforms and a manager's interface that runs just on Macs. The right choice for the boundaries between components is specific to your application, but there are several guidelines.

1. Split your application so that the user interface is separated from the lower layers. The X Window System provides a simple way to present the user display layer separately from the others, so you can usually get that degree of separation "for free" if you use X as the user interface.

2. You almost always want to separate the database access layer from the others. If you decide this in advance, you can probably accomplish this separation without too much work by using the remote database access tools

available through your database system.

3. If possible, I like to build applications with little or no application logic. I do this by embedding any business rules directly in the database. If all the updating is done via the user interface, I can probably embed in the user interface any business rules that cannot be implemented by the database system. Output from the application can then be just report-writing and similar activities that reside in the user interface layer. The alternative is to build an application logic layer, but make it as small as possible, and try to invoke the functionality of the application logic layer directly from the user interface. The trouble with this approach is that it leaves you with an application logic layer to port to different platforms, which can be a pain.

4. Choose tools and supported platforms such that you can use the tool on all the platforms you want to support. For the user interface layer, several tools can generate good users interfaces on at least X and Windows NT, and some also support Macs and even character-cell terminals. I don't really like the idea of limiting the look and feel of an application by what works well on a character-cell terminal that it pretending to be a "real" desktop device, but that is what some users want. For the database layer, your choices are probably limited by the databases supported in-house. But don't ignore the possibility of using ordinary files -- such as ISAM on OpenVMS, VSAM on IBM machines and C-ISAM on other platforms -- for at least part of your application data.

For example, Digital provides a tool called RMS Access for R db that presents RMS files to the database access layer as if they were tables in a relational database. CNA Computer Systems Engineering Inc. offers ConnX, which provides Open Database Connectivity (ODBC) access to RMS files via DECnet or pathworks. Many tool and database vendors provide similar capabilities, although they generally use a proprietary database access layer on the top.

#### Getting Started

If you haven't spent much time looking into client/server development, here is a thumbnail sketch of how the process works. When you design and build client/server applications, build them as a set of separate clients and servers, not as a single integrated client/server application. That is, at each boundary in the layering diagram, think about how you can build this component so that different layers can be plugged in above and below this layer but still provide access to the functionality within this layer. The cornerstone of good client/server implementation is to implement policy within a layer and export functionality to other layers.

If you want your database to represent a certain relationship between data elements, which is a good referential integrity policy, then it is up to the database to guarantee that the relationship is preserved across operations. The design and implementation of the database cannot expect the client applications to maintain the integrity of the database. It cannot "export policy." The database server can, however, return errors to applications that do not play by the rules necessary to preserve database integrity.

The database can and should export functionality, however. For example, if the application requires that a customer number be provided for every new customer or that all order-line items be deleted whenever an order header is deleted, the database may provide these functions.

From the point of view of the user interface layer, policy includes the entire look and feel of the application. This policy should be localized to the user interface, not exported into other layers. This approach allows you to have several interfaces with different appearances and behaviors. You can even let users choose among them, depending on their needs and preferences. Of course, you probably want to also have some of the user interfaces available on more than one platform, but this is not necessarily so. For example, Mac users might be more comfortable with a drag-and-drop interface, whereas Motif users might want point-and-click.

#### Just Do It -- With Care

To make client/server development work, careful planning is critical. But you also need to use an iterative software development methodology. Build your database, the application layer (if you need it) and at least one user interface. If you intend to provide any element of your application running on more than one platform, try multiple platforms early

rather than assume they will work at the end of your development. There are always files in the client/server environment.

I recommend that new users not build their first large client/server application by trying to shoehorn client/server components into an existing application. In my experience, most existing applications do not have a sufficiently clean layering model to allow "adding just a new user interface" or "just distributing the database." However, if you can find a cleanly layered application, by all means try that one first.

Given a good layering diagram, you'll find that the way to build a new application is by divide and conquer. For example, I'm a fan of data modeling. I build applications by iteratively building the database that represents the application data and then building the tools to operate on the data. For most applications, I find that the following client/server development steps work well.

1. Create the logical design for the database. Steer clear of any physical design issues such as indexes, since working on these will only slow you down.

2. Define the major transactions that will operate on the database. This step will help you identify the major business rules that must be implemented by the database.

3. Estimate the number of **transactions** per unit **time** and number of records in each **database** table. This is critical for **sizing** the **database** and **database server**, and will help you design the user interfaces.

4. Define the access control and security issues for your database and application. Generally, client/server applications have little access control implemented in the user interface and application logic layers, and most of it implemented in the database access and database layers. This approach gives you maximum flexibility and maximum security. If you rely on your user interface or application logic layers to provide access control, you leave all sorts of security holes. User interface tools are usually easy enough to use that most users can roll their own, and if they do that you don't have security in the database access or database layers, then you can be sure that your users will soon gain undesired access to your database.

5. Take a brief detour at this time and define the user interface elements that will maintain what I call the system data. This is the base data that is used by many of the tables in the database, such as tables of type codes (transaction types, user types, report types, and so on), table that translate identifiers in database records to the corresponding identifiers outside the database (for example, from Employee ID to Employee Account Number), and so on.

By building these user interface elements at this point, you gain several advantages. First, you can use the new tools to populate the reference tables. Second, you gain a way to communicate with the application users to show them how they will maintain the application data using the new user interface tools.

6. Define the critical transactional user interface elements. This is usually where your first difficulties arise in building a client/server application, because at this point you often have to decide where to embed application logic and processing rules. Where possible, I like to embed this logic in the database, because usually the database server is a fast machine. Further, embedding logic in the database will ensure that I don't have that logic scattered around on dozens of desktops where it is relatively hard to maintain.

7. Complete the client/server model. Now is the time to revisit the layering diagram and show how you can complete all of the requirements of the new system using the layering you have sketched out. Where will report printing be served? Will there be a batch processing interface to the new distributed application, and where will that run? Will the database servers need to be multi-threaded?

8. Finish building the application, following the same development methodology you would for any other application.

THE POWER OF client/server applications does not come without a price. The software developer and maintainer must become intimately familiar with many more elements of the process, from networks to databases to user interfaces to multiple platforms. And although debugging is generally simplified by the strict layering of the client/server model,

tracking down intermittent problems can call for all your gu. On the other hand, if you don't like a particular client or server, you can just build another and plug it in!

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**Compaq Releases Industry's First Sizing and Configuration Tool for Microsoft SQL Server 6.5.**

Business Wire, p07291422

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TEXT:

HOUSTON--(BUSINESS WIRE)--July 29, 1997-- Compaq Computer Corporation (NYSE: CPQ) announced today it is providing the first enterprise **server sizing** tool for Microsoft SQL **Server 6.5**. Uniquely developed by Compaq, with assistance from Microsoft's SQL **Server Group**, the new tool is being offered to customers free of charge as a download file from the Compaq Web site. The Compaq ProLiant Server Sizer for Microsoft SQL Server provides a quick and consistent way for customers to determine the "best-fit" server for their On-Line-Transaction-Processing applications. This easy to use, Windows-based, tool allows customers to take advantage of the extensive technical knowledge Compaq has developed for ProLiant servers running Microsoft SQL Server. The interactive tool also allows users to investigate alternatives by varying anticipated workloads, user populations, and the size of numerous parameters.

For more details and/or to download the Compaq Sizer for Microsoft SQL Server 6.5, please visit Compaq's Web site at:

<http://www.compaq.com/mssql.html>

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CONTACT: Compaq Computer Corporation  
Arch Currid, 281-514-0484  
[arch.currid@compaq.com](mailto:arch.currid@compaq.com)

or

Miller/Shandwick Technologies  
Julie Barnes, 617-536-0470  
[jbarnes@millershandwick.com](mailto:jbarnes@millershandwick.com)

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**Designing for satisfied users. (client servers) (includes related article on the creation of a business transaction profile)**  
Edlund, Albert E.; Parker, Sharon R.  
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ABSTRACT: Different types of client-server applications can operate over router networks. Fair response times are achieved when capacity planning is included in the design phase of distributed applications. Monitoring applications also help maintain running records to help planners know the effect of applications on increased traffic. Finally, networking staff should remain close to end users and application development groups.

TEXT:

Networks can get bogged down by factors that are less than obvious. Your applications and network need to work together effectively.

As organizations adopt the client-server model, data networks have evolved from terminal-to-host connections into LAN-based packet networks linked primarily with routers. Although the pace of this migration has been more conservative than originally forecast, important questions are being asked:

- \* What happens when client-server applications are merged over router-based networks?
- \* What is the potential impact to the users of the applications?
- \* What is the potential impact to other users of the network facilities?

Those who grew up in a mainframe world recall similar questions and see them as part of a legacy that has largely been ignored by advocates of distributed applications and router-based networks. In scorning the mainframe, they also dismiss the legacy process, with its strong emphasis on systems management disciplines.

Yearly reviews of capacity information, for example - relatively common in mainframe environments - are practically unheard of in routed internetworks. The consensus seems to be that capacity planning is irrelevant, that ever-increasing bandwidth makes planning "obsolete." But while that conventional wisdom might hold in a single LAN environment, when applications are extended across multiple LANs and multiple sites, capacity planning is critical.

Different Domains: Challenge of Client-Server

Unlike the OSI stack, with its tightly layered view of networked applications, the domains of client-server applications and routers are often organizationally isolated from one another (ILLUSTRATION FOR FIGURE 1 OMITTED). Different workgroups, or entire departments, are devoted either to the physical process of connecting locations (networking) or to the logical process of connecting users to data (applications).

Integrating efforts is a challenge because the two groups often work from different assumptions and are unaware of each other's design decisions. Often neither understands how new applications will affect the network.

The term client-server refers simply to two or more applications that

share the handling of information, typically across a network. Generally, the applications distribute responsibilities among the available resources for one of the following:

- \* Distributed Presentation: These are arguably the easiest client-server applications to develop. Initially called "screen scrapers," now referred to as "thin clients," these combine GUI interfaces on user workstations with legacy host applications.

The current focus on "thin client" implementations is also roughly comparable to the "X-windows" environment of the Unix world. The network impacts of distributed presentation applications increase as the user interface incorporates more graphic images and mouse clicks, and as more calls are exchanged with the host/server.

- \* Distributed Data: These are more complex in terms of both systems management and network capacity. Where data are stored not only affects how changes are controlled and how data are secured, but it can also dramatically affect the network's (TABULAR DATA FOR TABLE 1 OMITTED) traffic load. Distributed data applications can be described as either very fast, interactive (small, numerous queries) or as short, file transfer (larger block size) applications.

From a network perspective, stored procedure calls or static SQL (structured query language) calls are a better bet than dynamic SQL, since misusing the latter can put terabytes of data onto the network. For example, imagine the network traffic that could be generated by an ad hoc query, "show me all our customer data," delivered to multiple databases. Watch out on upcoming data-warehousing projects, since designers are fond of dynamic queries for data mining.

- \* Distributed Applications Processing: The most difficult aspect of this sort of application has to do with the cost-cutting expectations it generates. Proposals typically calculate savings by off-loading complex host computing cycles and reducing staff, but the cost of delivering consistent user response times is rarely factored in.

Remote procedure calls (RPCs), such as those used in the Open Software Foundation's (OSF's) Distributed Computing Environment (DCE), are a favored technique in distributed applications processing. But not only can RPCs load a network with enough additional traffic to delay response time, but also the parameters to design, model and measure the impacts of RPCs have yet to be built into most network or application design products.

Another problem is the potential mismatch between the application developer's view of the network and the network manager's plans. For example, an application designed for a connection-oriented infrastructure (e.g., SNA) is not easily moved to a connectionless one (e.g., LANs and routers). In contrast, an RPC/DCE approach presupposes an IP network substructure.

Table 1 summarizes typical characteristics and impacts of the three types of distributed applications. Client-server applications developed on a LAN, where bandwidth is presumed to be free and plentiful, can have dramatically unpleasant effects - affecting response times and throughput for many users - when they are rolled out, unchanged, across a shared backbone or wide area.

#### Two Examples

The basic factors in data network design are simple: How many messages are to be transferred and what size are they? The answers, plus source/destination information and throughput/response time expectations, provide designers with the parameters for a simple network topology. But here's what happened when one company forgot that the size and number of the messages going across a network has a similar effect on response time as the available bandwidth.

A client-server application was being developed that employees would over the LAN and via dial-in facilities. The target environment was a distributed database application running on a Unix server, which consulted the mainframe if it couldn't answer a query. The development target was 300 users, with an objective of one **transaction per minute** per user and a network turnaround of less than one second. Initial **sizing** of the environment predicted the **server** would have to handle about 20 **transactions per second**.

The flaw was that nobody bothered to define what a transaction looked like from a network perspective. No one asked the most basic question: "What happens when I press the 'Enter' key?"

Answering this question revealed the traffic characteristics of client-server applications. What users call "transactions" typically consist of multiple send-receive sequences. Having multiple network transactions support a single business transaction is not unique to any specific application model or network protocol (ILLUSTRATION FOR FIGURE 2 OMITTED), and it is possible (even necessary) that a subsecond network would support a many-second business transaction.

Identifying the number and size of information packets associated with transactions on a network is called "profiling" the application. For example, in Figure 3, the vertical axis is number of packets, while the horizontal axis is packet size.

In the case cited, profiling the application and modeling network impacts revealed that the number and size of the transactions would prevent the local LAN backbone from handling the projected load, and that remote users would get unsatisfactory response times. On top of resegmenting and adding bandwidth to the LAN, major changes to the application would be required before rolling it out to remote users.

Profiling pilot applications before rollout can avoid these problems. Unfortunately, gathering the profile data takes a hand-coded management information base (MIB) in the application itself or a very carefully scripted test scenario (see "How to Profile a Business Transaction").

In another case, a client-server application was purchased to support remote branch offices over a router-based network with T1 and 256-kbps links. When remote users saw applications running at headquarters with subsecond response times, they expressed dissatisfaction with the slower performance they were experiencing. The CIO wanted to understand the difference in performance, pointing to the company-wide perception that the infrastructure was based on "high-speed lines."

Here the flaw was less a design issue than one of unrealistic expectations. Mr. CIO got a short course in network delay, the end-to-end path is never faster than the slowest link along the way. Delays are additive in a serial path, and can be significantly affected by size and number of messages, line turnarounds and networking protocols. Thus there are often big differences between raw link speed and effective bandwidth.

A rough estimate of the potential throughput of a serial path (Y) can be made using simple arithmetic and the following formula:

$$1 / 1/A + 1/B + 1/C + 1/N = Y$$

A simple example is to calculate the effective speed of: Link A, which runs at 19.2 kbps into a packet switch; connected by Link B, at 56 kbps, to another packet switch; and finally Link C, another 19.2-kbps tail circuit. In this case, A, B and C would be replaced by the three link speeds in the path (i.e., 19,200, 56,000 and 19,200) and the effective speed (Y) would come to about 8,195 bps.

Obviously, additional issues must be considered when modeling complex network paths. But this rule of thumb illustrates that the user's interface speed can be highly unreliable as a network performance indicator. (Anyone surfing the Web with a 28.8 modem and enduring glacial downloads has seen this principle in action!)

Besides effective speed, issues affecting response time include hop count, link utilization and application data characteristics. Moreover, every network resource in the path of a transaction (LAN, router, CSU, T1 multiplexer, intermediate servers, bridges, repeaters) adds some delay, however trivial. Each of these components decreases the effective data rate of the total path, and increases the aggregate error rate and delay. The old rule "Keep It Simple" is just as relevant today as it was when links topped out at 1,200 bps.

Latency analysis by component and transmission medium may identify where delays can be decreased. Fortunately, and unlike the application-profiling issue above, performance data and analysis tools (e.g., Network General's Sniffer) are readily available for most of these components.

#### Conclusion

Many varieties of client-server applications can operate over router networks. From a networking perspective, some are benign and some malignant; end users experience the difference through response time.

Satisfactory response times are more likely if capacity planning is incorporated in the design phase of distributed applications. Subsequently, applications should be monitored for utilization not only of network links,

but also of router CPU. The running records can be maintained that will help planners understand the impacts of applications on traffic growth.

The characteristics of networked applications - especially HTML, multimedia and data warehousing - dramatically reflect the client-server trend. As these come on line, networking staffs must stay closely linked to the end users and to the application development groups. Existing data networks may or may not be affected by new client-server applications; the design of both should be revalidated against expectations

#### Eight Design Guidelines

Following eight simple rules can help make your client-server application successful in the eyes of users and a useful business tool.

1. From a user perspective, most client-server applications are interactive. Therefore, response time is a key criterion.
2. Response time is easy, the hard part is money - better response time usually costs more for upgraded workstations, processor complexes, network hardware or bandwidth.
3. If possible, keep message sizes small to reduce queue time in the network. This must be balanced against throughput and turnaround times.
4. When evaluating network performance of a new application, use a low-speed link, not production LANs or wide-area networks. If the application can deliver satisfactory response times at 9600 bps it should do fine over higher speeds. In addition, there is a relatively good chance that it will not negatively affect the router network.
5. Always attach routers at the highest possible speeds.
6. Keep hop counts to a minimum (each hop adds delay).
7. Capacity planning affects costs. Thorough planning can reduce costs, while ineffective or nonexistent capacity planning can translate to an increase in the cost of network facilities.
8. Profiling new applications, whether they are developed internally or purchased, should be done to determine the conditions under which an application should be allowed on the network

#### How to Profile a Business Transaction

The process of building a business transaction profile is based on link-level traces of network activity. The steps are:

1. Identify the test cases, typically the three or four most common business transactions supported by the application, and arrange for someone who is familiar with the business process to perform the data entry. Also test a worst-case data scenario (i.e., maximum number of frames, maximum number of bytes).
2. Build a test bed for the data capture process. This should parallel, as closely as possible, the production environment. Do not test the network using application development and testing tools - they provide information that application designers may find useful, but they don't test a network and may add superfluous transactions to the test environment.
3. Document the structure of the network to be used in the test. Include the network addresses of all the servers and workstations that participate in the setup and execution of the transaction. This may be as simple as two devices (one server, one workstation) or it may include four or more devices (workstation, data server, domain name server, mainframe, etc.).
4. Using an external probe (e.g., IBM's Datagance, Network General's Sniffer), trace the individual test cases. Use separate capture files for each scenario.
5. Captured data can be exported to a data analysis tool (e.g., Lotus Approach, Microsoft Access) to create histograms of the traffic patterns. These can also catalog traffic/application data for input into the network capacity planning process

Albert E. Edlund is a senior network consultant with the IBM Consulting Group of ISSC, where he provides network assistance in strategy development, architectures, design and modeling. He can be reached at: edlund@vnet.ibm.com. Sharon R. Parker is an IT strategy consultant with the IBM Consulting Group. She specializes in customer-based quality and business transformation, and can be reached at 214/280-5565 or sharonparker@vnet.ibm.com.

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**Applying simulation to network planning (part 1)**

Jazwinski, Andrew; Laszakovits, Brian

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**ABSTRACT:** In response to the need for more precise methodologies for analyzing network design and cost-performance trade-offs, vendors have introduced a range of tools for simulating network performance that can be applied to a variety of network planning and design tasks. Comdisco Systems Inc.'s BONEs PlanNet enterprise network simulator, a typical simulator, allows network managers to graphically represent the network. A key PlanNet feature allows the user to automatically vary many of the model parameters. The applications of simulation in network management include: 1. segmentation and backbone design, 2. link sizing and capacity planning, 3. server planning, 4. router and bridge sizing and capacity planning, and 5. network performance enhancement.

**TEXT:** As enterprise networks supporting mission-critical applications grow in size and complexity, network performance becomes a critical issue. "Back-of-the-envelope" analyses no longer cut the mustard. More precise methodologies for analyzing design and cost/performance trade-offs are needed.

In response, vendors have introduced a range of tools for simulating network performance that can be applied to a variety of network planning and design tasks.

The first piece of this two-part article describes a number of the issues involved in simulation and the benefits and value of performance analysis.

The second part, which will appear next week, will present a detailed case study showing how simulation is used in network segmentation and backbone design.

The study will introduce a methodology for using a simulator, starting with data collection issues and ending with interpretation of simulated performance plots.

**SIMULATION USAGE**

Although there are a number of simulators on the market, to get an idea of what the tools typically consist of, we will focus on Comdisco Systems, Inc.'s BONEs PlanNet enterprise network simulator.

PlanNet allows network managers to graphically represent the network by placing and connecting icons that represent network components, describe their properties and specify network traffic to be simulated. A wide range of network and application performance statistics may be collected and plotted to give insights into various performance trade-offs.

PlanNet comprises a simulation engine and a number of modules (models) for simulating local-area network segments, wide-area network links, interconnect devices (such as bridges and routers) and traffic generators (such as traffic sources and client/server interaction). Each module collects performance statistics when statistics collection is turned on. These collectors report primarily on delays, utilization and throughput for

the respective modules.

A key PlanNet feature allows you to automatically vary many of the model parameters. For example, you can vary the number of users on a LAN segment so that in a single simulation run, PlanNet will simulate your network model for a range of values for the parameter specified. The simulation produces comparative performance plots, showing the performance of your network as the selected parameter varies over the specified range of values.

These features make-PlanNet convenient for sizing, capacity planning and numerous what-if analyses for the various devices, LAN segments and WAN links in your network.

The following sections identify and illustrate some of the many applications of simulation in network management, showing what simulation can be used for.

#### SEGMENTATION, BACKBONE DESIGN

As network usage and loading increases, it will eventually become necessary to further segment the network. Network segmentation and backbone design, therefore, deal with analyses of network capacity to support additional users and applications, and a performance evaluation of various segmentation and backbone designs.

If done proactively, there will be no surprises and the network manager will be able to plan and budget for the required network changes.

Key performance measures in segmentation analysis include:

- \* Channel delays, utilization and throughput as a function of the number of users or the application load.

- \* Message or application transaction end-to-end delay, or response, as a function of the number of users.

As an example of this, PlanNet performance plots that show mean total media access control layer channel message delays on two 4M bit/sec token rings are presented in Figure 1 on page 33. (Figure 1 omitted)

The "knee" on a delay curve shows when the contention for a shared resource--in this instance, the communications channel--becomes significant. And, of course, application transaction response time is of ultimate interest to your customers, the network users.

As you well know, excessive transaction response time will cause your telephone to ring.

This proactive use of simulation will enable you to better plan for and manage change, saving your company money. The cost savings come from avoiding overdesign and being able to implement network expansions just in time.

#### LINK SIZING, CAPACITY PLANS

As corporate networks expand, more bandwidth will be needed to support users at remote office sites. But there will inevitably be the trade-off between performance and bandwidth costs.

WAN link sizing and capacity planning deal with analyses of circuit capacity to support projected growth and the sizing of these circuits for satisfactory application transaction response. Here again, proactive use of simulation can not only save money, but also result in better service for network users.

Key performance measures to look at include:

- \* Application transaction response, link delays and utilization as a

function of link speed (for sizing).

- \* Application transaction response, link delays and utilization as a function of the number of users (for capacity planning).

A link-sizing analysis using PlanNet generated the performance plots exhibited in Figure 2 on this page, which shows application transaction response as a function of link bandwidth. (Figure 2 omitted)

WAN link performance analyses using simulation can help optimize performance while, at the same time, minimizing costs. You know explicitly how much performance costs, not just how much bandwidth costs, so that you can make informed business decisions.

#### SIZING, CAPACITY PLANNING

Another key use of simulation in network management is in server planning.

Is it the communications channel or the server that is likely to cause excessive delays and unacceptable transaction response? Which will create bottlenecks first? When will the server become a bottleneck? Is the bottleneck in the server CPU or disk subsystem? How should the server be configured for satisfactory application transaction response?

For planning and budgeting purposes, it is nice to know when you will run out of server capacity.

It is also helpful to know whether it will take a faster server disk or CPU to bring application transaction response down to acceptable levels.

Simulation supports the resolution of such network management issues. It can help you size your servers for optimum transaction response, as well as help you plan and budget your server capacity upgrades.

The key performance measures for server sizing and capacity planning are:

- \* Application transaction response, server CPU, and disk delays and utilization as a function of server CPU power and disk **speed** (for **server sizing**).

- \* Application **transaction** response, **server CPU**, and disk delays and **utilizations** as a function of the number of users (for capacity planning).

#### OTHER SIMULATION APPS

Simulation can be beneficially applied to a wide variety of other network planning and design issues and various what-if planning studies.

A good foundation, or reference, for such analyses is a baseline performance simulation and analysis. This consists of simulation models as well as performance simulations of your current network to serve as a baseline for planning and troubleshooting.

The baseline not only serves as a reference for simulating various what-if planning scenarios, but it can also assist in troubleshooting network performance problems. Departures from the baseline performance can then be diagnosed as to whether it resulted from network growth or some hardware or software problem.

Other simulation applications include:

- \* Router and bridge sizing and capacity planning. Sizing bridges and routers for required application transaction response and analyses of their capacity to support additional users and applications.

- \* Application traffic engineering. Analyses of performance implications of network application architectures and deployment strategies.

- \* Reconfiguration analyses. Analyses of performance implications of proposed net reconfigurations.

\* Network performance enhancement. Enhancement of application performance through optimum system sizing and configuration.

In addition, a wide variety of special logical design and planning studies, such as tuning token rings using priorities, synchronous bandwidth allocation on Fiber Distributed Data Interface networks and many other design analyses can be performed with simulation.

Jazwinski is president and Laszakovitis is a consulting network engineer with Network Performance Corp. (NPC). NPC, located in Dunkirk, Md., provides network design consulting services using state-of-the-art design simulation tools. They may be reached at (301) 855-4600.

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COMPANY NAMES:

Comdisco Inc (DUNS:05-431-8936 TICKER:CDO)

GEOGRAPHIC NAMES: US

22/3,K/1 (Item 1 from file: 275)  
DIALOG(R)File 275:Gale Group Computer DB(TM)  
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02395997 SUPPLIER NUMBER: 61950595 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**The Dell PowerEdge 4400: A Departmental Powerhouse. (Hardware Review) (Evaluation)**  
Fetters, Dave  
Network Computing, 28  
April 17, 2000  
DOCUMENT TYPE: Evaluation ISSN: 1046-4468 LANGUAGE: English  
RECORD TYPE: Fulltext  
WORD COUNT: 969 LINE COUNT: 00077

... servers in this market use a dual-peer PCI bus configuration. Compared with Dell's **class** -leading enterprise **server**, the PowerEdge 6300 (see "Dell's PowerEdge 6300: Sharp Edge Over Network Connectivity" at [www...](http://www.networkcomputing.com/1019/1019f2.html)

...support. Even IBM Corp.'s Netfinity 5500 M20, the top performer in our quad-processor **server** tests (see "**Sizing** Up the Quad Squad," at [www.networkcomputing.com/1019/1019f2.html](http://www.networkcomputing.com/1019/1019f2.html)), doesn't have a...

22/3,K/2 (Item 2 from file: 275)  
DIALOG(R)File 275:Gale Group Computer DB(TM)  
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02341736 SUPPLIER NUMBER: 56471158 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Buyer's Guide: Multiprocessor Servers. (Technology Information)**  
Fetters, Dave  
Network Computing, 136  
Oct 18, 1999  
ISSN: 1046-4468 LANGUAGE: English RECORD TYPE: Fulltext  
WORD COUNT: 1242 LINE COUNT: 00101

... and two 50-GB hard drives. As seen in the results of our quad-processor **server** tests ("**Sizing** Up the Quad Squad," [www.networkcomputing.com/1019/1019f2.html](http://www.networkcomputing.com/1019/1019f2.html)), you'd quickly hit a ceiling, with **CPU utilization** falling short of the 100 percent maximum. Using 10 10-GB drives in place of...

22/3,K/3 (Item 3 from file: 275)  
DIALOG(R)File 275:Gale Group Computer DB(TM)  
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02207457 SUPPLIER NUMBER: 20964039 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Live (almost), from New York - it's PC expo. (news from HP) (News Briefs)**  
HP Professional, v12, n7, p4(1)  
July, 1998  
ISSN: 0896-145X LANGUAGE: English RECORD TYPE: Fulltext  
WORD COUNT: 252 LINE COUNT: 00022

TEXT:

...s announcements from last month's annual PC extravaganza: Support For Microsoft's New NT **Server Family** -HP will be working with the Redmondians to help customers move business-critical applications to...

...across the NetServer L Series. The two firms will be working together to provide Terminal **Server sizing** information and guidelines. For more information, go to [www.hp.com/netserver/techlib](http://www.hp.com/netserver/techlib).

22/3,K/4 (Item 4 from file: 275)  
DIALOG(R)File 275:Gale Group Computer DB(TM)  
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02192380 SUPPLIER NUMBER: 19722417 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Fun with partitioning; concepts and processes for developing a sound  
application partitioning scheme. (client/server) (Technology Information)**  
Linthicum, David S.  
DBMS, v10, n10, p24(3)  
Sep, 1997  
ISSN: 1041-5173 LANGUAGE: English RECORD TYPE: Fulltext; Abstract  
WORD COUNT: 2651 LINE COUNT: 00224

... and the enabling technology in use. A common mistake is to try and  
scale through **server sizing**. Buying bigger **processors** to scale to  
larger **user** and processing loads might seem to make good sense, but it's  
the architecture and...

22/3,K/5 (Item 5 from file: 275)  
DIALOG(R)File 275:Gale Group Computer DB(TM)  
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01685648 SUPPLIER NUMBER: 15399378 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Divide and conquer. (developing client/server applications) (Tutorial)**  
Naecker, Philip A.  
DEC Professional, v13, n6, p28(6)  
June, 1994  
DOCUMENT TYPE: Tutorial ISSN: 0744-9216 LANGUAGE: ENGLISH  
RECORD TYPE: FULLTEXT; ABSTRACT  
WORD COUNT: 2777 LINE COUNT: 00217

... major business rules that must be implemented by the database.  
3. Estimate the number of **transactions** per unit **time** and number  
of records in each **database** table. This is critical for **sizing** the  
**database** and **database server**, and will help you design the user  
interfaces.  
4. Define the access control and security...

22/3,K/6 (Item 6 from file: 275)  
DIALOG(R)File 275:Gale Group Computer DB(TM)  
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01678411 SUPPLIER NUMBER: 15096881 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Pyramid power. (Pyramid Technology will use Aston Brooke Software's  
DB-Vision 1.2.1 data base performance monitor on Pyramid's MIServer ES  
series of UNIX-based servers) (Brief Article)**  
EXE, v8, n9, p8(1)  
March, 1994  
DOCUMENT TYPE: Brief Article ISSN: 0268-6872 LANGUAGE: ENGLISH  
RECORD TYPE: FULLTEXT  
WORD COUNT: 84 LINE COUNT: 00006

TEXT:

...2.1 on its MIServer ES Series of large Unix servers. DB-Vision is  
a **database** performance monitor geared for mainframe- **class** system  
management on open systems, something Pyramid is hoping will attract  
current mainframe users, thinking of down- **sizing**, towards its **servers**.  
The product will allow administrators of Pyramid platforms to monitor an  
unlimited amount of Oracle...

22/3,K/7 (Item 7 from file: 275)  
DIALOG(R)File 275:Gale Group Computer DB(TM)  
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01553026 SUPPLIER NUMBER: 13319945 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Green shoots of discovery. (Andersen Consulting integrates custom software  
for BF Goodrich) (Software: Computer Aided Manufacturing)**  
Evans, David  
Computer Weekly, p37(1)

Nov 26, 1992

ISSN: 0010-4787

LANGUAGE: ENGLISH

RECORD TYPE: FULLTEXT; ABSTRACT

WORD COUNT: 1422

LINE COUNT: 00111

... larger package - a unique shrink-wrapped solution for the process industry that, for the first **time**, integrated plant level IT **activities** with the entrepreneurial aspect. It was also an idea concurrent with the trend towards down- **sizing** and client- **server** architectures.

Soon the vision began to take form. As the Andersen R&D team reworked

...

**22/3,K/8 (Item 8 from file: 275)**

DIALOG(R)File 275:Gale Group Computer DB(TM)

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01459324 SUPPLIER NUMBER: 11441428 (USE FORMAT 7 OR 9 FOR FULL TEXT)

**Pathworks networks: a supportable architecture. (Workstations) (Column)**

Bynon, David W.

DEC Professional, v10, n10, p120(3)

Oct, 1991

DOCUMENT TYPE: Column ISSN: 0744-9216 LANGUAGE: ENGLISH

RECORD TYPE: FULLTEXT; ABSTRACT

WORD COUNT: 2465 LINE COUNT: 00191

... products such as the X.400 Mail Gateway or Distributed Directory Service are not. By **sizing** a **server** for a dedicated service, such as a gateway, you can save the higher license cost. Also, it is not necessary to use **servers** of the same **kind**. If your primary system architecture is VMS but exceptional file server performance or cost is...

**22/3,K/9 (Item 9 from file: 275)**

DIALOG(R)File 275:Gale Group Computer DB(TM)

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01321542 SUPPLIER NUMBER: 07058296 (USE FORMAT 7 OR 9 FOR FULL TEXT)

**Benchmark results: let the buyer beware.**

Zornes, J. Aaron

MIS Week, v10, n6, p51(1)

Feb 6, 1989

ISSN: 0199-8838 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT

WORD COUNT: 1324 LINE COUNT: 00112

... overstate results. For example, some TP1 tests use 100,000 row account tables for all **TPS** ratings, while DebitCredit ratings require 100,000 accounts per one **TPS** being measured. The smaller the table, the higher the probability the data resides in cache...

**22/3,K/10 (Item 10 from file: 275)**

DIALOG(R)File 275:Gale Group Computer DB(TM)

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01247767 SUPPLIER NUMBER: 06872335 (USE FORMAT 7 OR 9 FOR FULL TEXT)

**Oracle claims multiple OLTP speed records. (on-line transaction processing) (Oracle 6.0) (product announcement)**

Feuche, Mike

MIS Week, v9, n30, p1(3)

July 25, 1988

DOCUMENT TYPE: product announcement ISSN: 0199-8838 LANGUAGE:

ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT

WORD COUNT: 1745 LINE COUNT: 00143

... descriptions of the TP1 and Debit-Credit benchmarks provide straightforward guidelines to such elements as **database sizing**, **transaction** logging and response **time**. We await with interest more detailed benchmark information that will indicate Oracle's degree of...

22/3,K/11 (Item 1 from file: 47)  
DIALOG(R)File 47:Gale Group Magazine DB(TM)  
(c) 2002 The Gale group. All rts. reserv.

03319440 SUPPLIER NUMBER: 08216317 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Revisiting DBMS benchmarks. (the Set Query benchmark for comparing commercial database applications)**  
O'Neil, Patrick E.  
Datamation, v35, n18, p47(4)  
Sept 15, 1989  
ISSN: 1062-8363 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT  
WORD COUNT: 2159 LINE COUNT: 00179

... records with five conditions (query 4B).  
Queries in Direct Marketing  
Direct marketing is a second **type** of **application** that relies upon set queries. These applications use queries to identify lists of individuals or...

...are most likely to purchase a given product or service. List selection usually involves two **database** actions: first, effecting a preliminary **sizing** and exploration of possible criteria for selection and, second, retrieving the data for mailings or...

22/3,K/12 (Item 2 from file: 47)  
DIALOG(R)File 47:Gale Group Magazine DB(TM)  
(c) 2002 The Gale group. All rts. reserv.

03225751 SUPPLIER NUMBER: 07328621 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Toward an equitable benchmark. (on-line transaction processing) (includes related action on difficulty of on-line transaction processing benchmarks)**  
Serlin, Omri  
Datamation, v35, n3, p47(4)  
Feb 1, 1989  
ISSN: 1062-8363 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT  
WORD COUNT: 2498 LINE COUNT: 00200

... TPC Benchmark B, the next candidate for standardization, is expected to be more like the **database** -only Tpl test.  
File **sizing** is one of the key areas in which liberties have been taken in past executions...the three key files--the so-called ABT (accounts, branch, and teller) files. For each **tps** presented to the system, a specified number of ABT records must exist. Thus, for systems claiming higher **tps** ratings, larger files must be used. Especially critical is the accounts file, which should have 100,000 records of 100 bytes each for each **tps**. Thus, a test reporting 100 **tps** should have used 10 million accounts records, occupying at least 1GB of disk space.  
A...

22/3,K/13 (Item 1 from file: 621)  
DIALOG(R)File 621:Gale Group New Prod. Annou. (R)  
(c) 2002 The Gale Group. All rts. reserv.

02573470 Supplier Number: 63520252 (USE FORMAT 7 FOR FULLTEXT)  
**Trend Micro's InterScan VirusWall First Antivirus Product to be SunTone Certified for ASP Deployment.**  
Business Wire, p2293  
July 18, 2000  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 1096

... a 24x7 service provider environment. Extensive testing of InterScan

VirusWall, including throughput measurement on a **variety** of enterprise grade **server** platforms and **sizing** tests in multiple configurations, was conducted at Sun Microsystems Service Provider Labs. In addition, Trend...

**22/3,K/14 (Item 2 from file: 621)**

DIALOG(R)File 621:Gale Group New Prod.Annou.(R)  
(c) 2002 The Gale Group. All rts. reserv.

01554395 Supplier Number: 47867240 (USE FORMAT 7 FOR FULLTEXT)  
**Compaq Releases Industry's First Sizing and Configuration Tool for Microsoft SQL Server 6.5.**  
Business Wire, p07291422  
July 29, 1997  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 358

(USE FORMAT 7 FOR FULLTEXT)

TEXT:

...29, 1997-- Compaq Computer Corporation (NYSE: CPQ) announced today it is providing the first enterprise **server sizing** tool for Microsoft SQL **Server 6.5**. Uniquely developed by Compaq, with assistance from Microsoft's **SQL Server Group**, the newtool is being offered to customers free of charge as a download file from the...

**22/3,K/15 (Item 3 from file: 621)**

DIALOG(R)File 621:Gale Group New Prod.Annou.(R)  
(c) 2002 The Gale Group. All rts. reserv.

01435426 Supplier Number: 46776731 (USE FORMAT 7 FOR FULLTEXT)  
**Aberdeen Group and Atre Associates Among Four More Firms to Join Client/Server Labs' Testing Services Network.**  
Business Wire, p10070072  
Oct 7, 1996  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 1066

... marketing, Client/Server Labs.

Peter Kastner, vice president with the internationally known consulting firm Aberdeen **Group** states, "We recognize that Client/ **Server** Labs is one of the leading providers of accurate, objective and real world-based performance...

...and expertise of CSL will allow us to go one step further in designing and **sizing** client/ **server** systems that will predictably meet the performance goals of our customers."

Atre Associates, which provides...

**22/3,K/16 (Item 4 from file: 621)**

DIALOG(R)File 621:Gale Group New Prod.Annou.(R)  
(c) 2002 The Gale Group. All rts. reserv.

01285220 Supplier Number: 45400520 (USE FORMAT 7 FOR FULLTEXT)  
**MICROSOFT ANNOUNCES SNA SERVER VERSION 2.11**  
PR Newswire, pN/A  
March 13, 1995  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 2073

... such as NetWare(R), Banyan(R) and TCP/IP environments. Among the topics covered are **server sizing** recommendations for CPU **types** and memory for various usage patterns,

preinstallation guides, enterprise rollout information and maintenance and troubleshooting...

22/3,K/17 (Item 5 from file: 621)  
DIALOG(R)File 621:Gale Group New Prod.Annou.(R)  
(c) 2002 The Gale Group. All rts. reserv.

01037970 Supplier Number: 40020467 (USE FORMAT 7 FOR FULLTEXT)  
**REIFER CONSULTANTS, INC. is pleased to announce the release of an exciting new product called ASSET-R.**  
PR Newswire, pN/A  
April 6, 1987  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 285

... growth versus functionality and schedule during their estimating sessions.

\* ASSET-R allows you to link **sizing** estimates with cost models, **database** managers, spreadsheets and a **variety** of other personal computer-based **software**. It is fully supported with complete documentation, training and product consulting expertise by an established...

22/3,K/18 (Item 1 from file: 636)  
DIALOG(R)File 636:Gale Group Newsletter DB(TM)  
(c) 2002 The Gale Group. All rts. reserv.

03905363 Supplier Number: 50096151 (USE FORMAT 7 FOR FULLTEXT)  
**-HEWLETT-PACKARD: HP supports Microsoft's thin-client/server solution**  
M2 Presswire, pN/A  
June 17, 1998  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 675

(USE FORMAT 7 FOR FULLTEXT)  
TEXT:  
...announced its support of Microsoft's latest addition to the Microsoft(r) Windows NT(r) **Server family**, the Windows NT **Server** 4.0 operating system, Terminal Server Edition, which will offer corporate IT departments yet another...

...of-ownership and performance objectives, Microsoft and HP are working together to provide Windows Terminal **Server sizing** information and guidelines. Details on HP's scalability analysis Windows Terminal Server on HP NetServer...

22/3,K/19 (Item 2 from file: 636)  
DIALOG(R)File 636:Gale Group Newsletter DB(TM)  
(c) 2002 The Gale Group. All rts. reserv.

03834785 Supplier Number: 48328622 (USE FORMAT 7 FOR FULLTEXT)  
**MATRIXONE: MatrixOne sets important new scalability/ performance benchmark for the PDM industry**  
M2 Presswire, pN/A  
March 2, 1998  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 1044

... The important results are being used by MatrixOne to provide its customers with valuable system- **sizing** guidelines.

The Client/ **Server** Labs test replicated the load and variety of

users that would be encountered in a...

...s Northbridge NX801 for Microsoft Windows NT 4.0, Hewlett-Packard's HP 9000 K- **Class** Enterprise **Server** running HP-UX 10.0, NEC ProSeraSH running Windows NT 4.0, and Sun Microsystem...

**22/3,K/20 (Item 1 from file: 16)**  
DIALOG(R)File 16:Gale Group PROMT(R)  
(c) 2002 The Gale Group. All rts. reserv.

09201441 Supplier Number: 77930514 (USE FORMAT 7 FOR FULLTEXT)  
**inside IBM. (new products and alliances)**  
Enterprise Systems Journal, v15, n5, p9  
May, 2000  
Language: English Record Type: Fulltext  
Document Type: Magazine/Journal; Trade  
Word Count: 918

... on a range of servers, such as S/390, RS/6000, AS/400 and Netfinity **brand servers**. Sample configurations are available for small, medium and large requirements with highly accurate IBM **server sizing** methodologies. For customers looking to implement highly scalable SAP BW solutions, the IBM DB2 Universal...

**22/3,K/21 (Item 2 from file: 16)**  
DIALOG(R)File 16:Gale Group PROMT(R)  
(c) 2002 The Gale Group. All rts. reserv.

06058766 Supplier Number: 54841575 (USE FORMAT 7 FOR FULLTEXT)  
**How Big Is Big Enough?(determining the appropriate server configuration) (Technology Information)**  
Lafferty, David  
Network, pNA  
August 1, 1998  
Language: English Record Type: Fulltext Abstract  
Document Type: Magazine/Journal; Trade  
Word Count: 1895

... of testing (for more information, see "Load Testing Tools").  
Moving Target  
There are reasons why **sizing** Windows NT **Server** configurations is difficult. The first is that many organizations lack experience with the performance of...

...still comparatively new and lacks an established track record for industry- standard enterprise or workgroup **applications**, most organizations still guess what **kind** of configuration they need and hope they guessed right when applications go into production.  
The...

**22/3,K/22 (Item 3 from file: 16)**  
DIALOG(R)File 16:Gale Group PROMT(R)  
(c) 2002 The Gale Group. All rts. reserv.

03848306 Supplier Number: 45513086 (USE FORMAT 7 FOR FULLTEXT)  
**SERVERS BALANCING TASKS**  
Computer Reseller News, p121  
May 1, 1995  
Language: English Record Type: Fulltext  
Document Type: Magazine/Journal; Trade  
Word Count: 1043

... T is going to market with its 3455 and 3500 SMP servers. The 3500 can **use** up to 16 90MHz Pentium **processors**. The 3455 has eight processors crammed into a desktop-size unit. The average selling price...

...selling price for the 3500 is \$250,000. The scalable architecture will allow the right- **sizing** of the SMP **server** to the network's needs; or, with enough performance, it will act as an outright...

**22/3,K/23 (Item 1 from file: 148)**

DIALOG(R)File 148:Gale Group Trade & Industry DB  
(c)2002 The Gale Group. All rts. reserv.

12805095 SUPPLIER NUMBER: 66936829 (USE FORMAT 7 OR 9 FOR FULL TEXT)

**Let the Fit revolution Begin.**

DesMarteau, Kathleen

Bobbin, 42, 2, 42

Oct, 2000

ISSN: 0896-3991 LANGUAGE: English RECORD TYPE: Fulltext

WORD COUNT: 4561 LINE COUNT: 00368

... specializes in anthropometric research and analysis, explains that Anthrotech can map an apparel firm's **sizing** specifications onto the CAESAR **database**, and identify significant size **groups** that are not being covered and verify whether specific sizes and grade rules need to...

**22/3,K/24 (Item 2 from file: 148)**

DIALOG(R)File 148:Gale Group Trade & Industry DB  
(c)2002 The Gale Group. All rts. reserv.

10262774 SUPPLIER NUMBER: 20803389 (USE FORMAT 7 OR 9 FOR FULL TEXT)

**WebStar 3.0 shines, but is it enterprise bright? (Software Review) (Evaluation)**

Dugan, Sean

InfoWorld, v20, n23, p76(1)

June 8, 1998

DOCUMENT TYPE: Evaluation ISSN: 0199-6649 LANGUAGE: English

RECORD TYPE: Fulltext

WORD COUNT: 722 LINE COUNT: 00059

... WebStar gives you good control over all the things you'd expect in a Web **server**: cache **sizing** preferences, logging, MIME **types**, suffix mapping, and the number of allowed connections. You can also block connections from a...

**22/3,K/25 (Item 3 from file: 148)**

DIALOG(R)File 148:Gale Group Trade & Industry DB  
(c)2002 The Gale Group. All rts. reserv.

09150020 SUPPLIER NUMBER: 18916219 (USE FORMAT 7 OR 9 FOR FULL TEXT)

**Designing for satisfied users. (client servers) (includes related article on the creation of a business transaction profile)**

Edlund, Albert E.; Parker, Sharon R.

Business Communications Review, v26, n11, p75(4)

Nov, 1996

ISSN: 0162-3885 LANGUAGE: English RECORD TYPE: Fulltext; Abstract

WORD COUNT: 2428 LINE COUNT: 00203

... t answer a query. The development target was 300 users, with an objective of one **transaction** per **minute** per user and a network turnaround of less than one second. Initial **sizing** of the environment predicted the **server** would have to handle about 20 **transactions** per **second**.

The flaw was that nobody bothered to define what a transaction looked like from a...

**22/3,K/26 (Item 4 from file: 148)**

DIALOG(R)File 148:Gale Group Trade & Industry DB

(c)2002 The Gale Group. All rights reserved.

08667716 SUPPLIER NUMBER: 18218775 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Dodge a client-server collision. (using rapid application development tools) (includes table comparing the performance of Borland's Delphi, Sybase/Powersoft's PowerBuilder and Microsoft's Visual Basic) (Technology Information)**  
Linthicum, David S.  
Government Computer News, v15, n8, p27(2)  
April 15, 1996  
ISSN: 0738-4300 LANGUAGE: English RECORD TYPE: Fulltext; Abstract  
WORD COUNT: 1117 LINE COUNT: 00097

... data, and the estimated user and processing load. Document these requirements.

\* Size and select a **processor**, **operating system** and **database server** to meet requirements. **Server sizing** should include simulation modeling, hardware metrics and testing on a pilot system. Many government client...

22/3,K/27 (Item 5 from file: 148)  
DIALOG(R)File 148:Gale Group Trade & Industry DB  
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08010471 SUPPLIER NUMBER: 16903242 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Servers balancing tasks. (the industry trend toward symmetrical multiprocessing servers) (Network Hardware)**  
Terdoslavich, William  
Computer Reseller News, n628, p121(2)  
May 1, 1995  
ISSN: 0893-8377 LANGUAGE: English RECORD TYPE: Fulltext; Abstract  
WORD COUNT: 1103 LINE COUNT: 00089

... T is going to market with its 3455 and 3500 SMP servers. The 3500 can **use** up to 16 90MHz Pentium **processors**. The 3455 has eight processors crammed into a desktop-size unit. The average selling price...

...selling price for the 3500 is \$250,000. The scalable architecture will allow the right- **sizing** of the SMP **server** to the network's needs; or, with enough performance, it will act as an outright...

22/3,K/28 (Item 1 from file: 553)  
DIALOG(R)File 553:Wilson Bus. Abs. FullText  
(c) 2002 The HW Wilson Co. All rights reserved.

03576174 H.W. WILSON RECORD NUMBER: BWBA97076174 (USE FORMAT 7 FOR FULLTEXT)  
**Technical progress and co-invention in computing and in the uses of computers.**  
Bresnahan, Timothy  
Greenstein, Shane  
Brookings Papers on Economic Activity (Brook Pap Econ Act) ('96 Microeconomics) p. 1-77  
LANGUAGE: English  
WORD COUNT: 23177

(USE FORMAT 7 FOR FULLTEXT)

TEXT:

... builds new C/S applications will need new server hardware. We discard changes to PC- **class servers** since they are irrelevant to our study of large-scale computer facilities, which as a...harder to detect in the data. Second, we miss all client/server computing with PC **servers**, which means some "up **sizing**" of applications formerly run on personal computers or on local area networks. While these two...

22/3,K/29 (Item 1 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
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02083192 62911249

**CAD: Let the fit revolution begin**

DesMarteau, Kathleen

Bobbin v42n2 PP: 42-56 Oct 2000

ISSN: 0896-3991 JRNL CODE: BBN

WORD COUNT: 4963

...TEXT: specializes in anthropometric research and analysis, explains that Anthrotech can map an apparel firm's **sizing** specifications onto the CAESAR **database**, and identify significant size **groups** that are not being covered and verify whether specific sizes and grade rules need to...

22/3,K/30 (Item 2 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
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00762616 94-12008

**About databases**

Parker, Kevin

Manufacturing Systems Manufacturing Execution Systems Supplement PP: MES24 Sep 1993

ISSN: 0748-948X JRNL CODE: MFS

WORD COUNT: 630

...ABSTRACT: maintaining database accuracy. A database is a collection of structured data files, independent of any **application**. There are several **types** of **databases**, including hierarchical and network, but an MES typically uses relational database technology. The relational model...

... system. In addition, those that know the manufacturing process must advise the experts choosing the **database** and **sizing** its computer platform. For these reasons, it is important to understand something about the relational...

22/3,K/31 (Item 3 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
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00710167 93-59388

**Applying simulation to network planning (part 1)**

Jazwinski, Andrew; Laszakovits, Brian

Network World v10n20 PP: 33-35 May 17, 1993

ISSN: 0887-7661 JRNL CODE: NWW

WORD COUNT: 1276

...TEXT: CPU, and disk delays and utilization as a function of server CPU power and disk **speed** (for **server sizing**).

\* Application **transaction** response, **server CPU**, and disk delays and **utilizations** as a function of the number of users (for capacity planning).

OTHER SIMULATION APPS

Simulation...

22/3,K/32 (Item 1 from file: 635)  
DIALOG(R)File 635:Business Dateline(R)  
(c) 2002 ProQuest Info&Learning. All rts. reserv.

0955840 99-18621

**ATLANTA TECH THE PATENTS Footmark device sizes up your feet**

Tharpe, Gene

Atlanta Constitution (Atlanta, GA, US) pD.07

PUBL DATE: 980624

WORD COUNT: 578

DATELINE: Atlanta, GA, US, South Atlantic

TEXT:

...he said elderly people often may fall because they are wearing the wrong size or **type** of shoes.

"There is no **database** for **sizing** American feet and (shoe sizes) are based on 100-year-old data determined mainly by...

22/3,K/33 (Item 1 from file: 9)  
DIALOG(R)File 9:Business & Industry(R)  
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01842187 (USE FORMAT 7 OR 9 FOR FULLTEXT)

**Apache:Freely Successful**

(The Apache Group's Web server software is used at 42% of over 1 mil Unix Internet sites, according to a survey by Internet consultant Netcraft , vs 14% for Microsoft and 11% for Netscape's)

Information Week, p 90

June 02, 1997

DOCUMENT TYPE: Journal ISSN: 8750-6874 (United States)

LANGUAGE: English RECORD TYPE: Fulltext

WORD COUNT: 1560

ABSTRACT:

The Apache **Group** 's Web **server** **software** is used at 42% of over 1 mil Unix Internet sites, according to a survey...

...Internet and intranet servers. While Apache is not yet available for Windows NT, the Apache **Group** plans to develop **server** **software** for the Microsoft operating system. Although Apache is free, that doesn't explain its popularity...

...to eight times faster than the current protocol. Also, where commercial vendors have priorities beyond **server** **software** , the Apache **Group** is totally devoted to making the best possible **server** . The Apache **Group** itself is **sizing** up the Windows NT market, with plans to develop a version of Apache for NT. ...

22/3,K/34 (Item 1 from file: 647)  
DIALOG(R)File 647:CMP Computer Fulltext  
(c) 2002 CMP Media, LLC. All rts. reserv.

01213863 CMP ACCESSION NUMBER: NWC20000417S0009

**The Dell PowerEdge 4400: A Departmental Powerhouse**

Dave Feters

NETWORK COMPUTING, 2000, n 1107, PG28

PUBLICATION DATE: 000417

JOURNAL CODE: NWC LANGUAGE: English

RECORD TYPE: Fulltext

SECTION HEADING: Sneak Previews

WORD COUNT: 888

... servers in this market use a dual-peer PCI bus configuration. Compared with Dell's **class** -leading enterprise **server** , the PowerEdge 6300 (see "Dell's PowerEdge 6300: Sharp Edge Over Network Connectivity " at www...

...support. Even IBM Corp.'s Netfinity 5500 M20, the top performer in our

quad-processor **server** tests (see " **Sizing** Up the Quad Squad" at  
www.networkcomputing.com/1019/1019f2.html), doesn't have a...

**22/3,K/35 (Item 2 from file: 647)**  
DIALOG(R)File 647:CMP Computer Fulltext  
(c) 2002 CMP Media, LLC. All rts. reserv.

01202893 CMP ACCESSION NUMBER: NWC19991018S0029  
**Buyer's Guide: Multiprocessor Servers**  
Dave Fetters  
NETWORK COMPUTING, 1999, n 1021, PG136  
PUBLICATION DATE: 991018  
JOURNAL CODE: NWC LANGUAGE: English  
RECORD TYPE: Fulltext  
SECTION HEADING: Workshop - Servers And Peripherals  
WORD COUNT: 1145

... and two 50-GB hard drives. As seen in the results of our  
quad-processor **server** tests (" **Sizing** Up the Quad Squad,"  
www.networkcomputing.com/ 1019/1019f2.html), you'd quickly hit a ceiling,  
with **CPU utilization** falling short of the 100 percent maximum. Using  
10 10-GB drives in place of...

**22/3,K/36 (Item 3 from file: 647)**  
DIALOG(R)File 647:CMP Computer Fulltext  
(c) 2002 CMP Media, LLC. All rts. reserv.

01050462 CMP ACCESSION NUMBER: CRN19950501S0071  
**Servers Balancing Tasks - Adding another server is no longer the approach  
to boosting network power. SMP servers can already handle more than  
two jobs at once. To add power to the network, just add another CPU  
board.** (Weekly Briefs)  
William Terdoslavich  
COMPUTER RESELLER NEWS, 1995, n 628, PG121  
PUBLICATION DATE: 950501  
JOURNAL CODE: CRN LANGUAGE: English  
RECORD TYPE: Fulltext  
SECTION HEADING: feature - Network Hardware  
WORD COUNT: 993

... T is going to market with its 3455 and 3500 SMP servers. The 3500  
can **use** up to 16 90MHz Pentium **processors** . The 3455 has eight  
processors crammed into a desktop-size unit. The average selling price...

...selling price for the 3500 is \$250,000. The scalable architecture will  
allow the right- **sizing** of the SMP **server** to the network's needs; or,  
with enough performance, it will act as an outright...

**22/3,K/37 (Item 1 from file: 674)**  
DIALOG(R)File 674:Computer News Fulltext  
(c) 2002 IDG Communications. All rts. reserv.

084835  
**Letters**  
Byline: Readers  
Journal: Network World Page Number: 58  
Publication Date: June 12, 2000  
Word Count: 596 Line Count: 52

Text:  
Your article " **Sizing** up LDAP **servers** " (May 15, page 78) states: "To  
level the playing field, we asked all vendors to...

...already paid for twice. I didn't see the record companies rushing to put  
some **sort** of rebate **program** in place to treat consumers fairly.I figure

that if anyone has bought a album...

22/3,K/38 (Item 1 from file: 813)  
DIALOG(R)File 813:PR Newswire  
(c) 1999 PR Newswire Association Inc. All rts. reserv.

1249940 SFM004  
New Intel Server Sizing White Paper Featuring Bluecurve's Dynameasure  
Illustrates How to Configure Servers to Obtain Optimal Performance

DATE: March 30, 1998 08:02 EST WORD COUNT: 973

... March 30 /PRNewswire/ -- Bluecurve(TM), Inc. today announced that a new Intel white paper called " **Server Sizing** : Performance Impact of CPU and Disk on Server Capacity" utilizes Bluecurve's Dynameasure product to show Intel customers the importance of configuring servers to obtain...

...Grubb, Bluecurve Vice President of Marketing. "With this piece, Intel is providing practical approaches and **server sizing** information backed by hard performance data to those who purchase, configure and deploy Intel-based **servers** ."

New **Class** of **Software** Designed for Managing Distributed Systems

Dynameasure is not a load tester, not just a benchmark...

02303872 103219799

**Using Linux to get easier**

Hochmuth, Phil; Connor, Deni

Network World v19n4 PP: 1, 13 Jan 28, 2002 ISSN: 0887-7661 JRNL CODE:  
NWW

DOC TYPE: Periodical; News LANGUAGE: English RECORD TYPE: Fulltext

LENGTH: 2 Pages

WORD COUNT: 806

**ABSTRACT:** At the LinuxWorld Conference & Expo, Compaq, Computer Associates, IBM, Intel and Hewlett-Packard will be among more than 100 vendors touting their wares. Red Hat, BMC Software and HP will be among the many companies announcing services and products for helping customers install and manage Linux systems, or to migrate to Linux servers from Unix systems or proprietary mainframe platforms. With lots of hardware horsepower and management products on hand, the show also will feature vendors with plenty of applications for Linux.

**TEXT:** Show to feature migration, mgmt. tools.

NEW YORK - A host of bigname vendors this week will air servers and applications aimed at handling heavier Linux workloads as well as tools for managing what some users are calling "unwieldy" open source systems.

At the LinuxWorld Conference & Expo - expected by organizers to draw less than the 25,000 attendees who showed for the San Francisco edition last August - Compaq, Computer Associates, IBM, Intel and HewlettPackard will be among more than 100 vendors touting their wares. Red Hat, BMC Software and HP will be among the many companies announcing services and products for helping customers install and manage Linux systems, or to migrate to Linux servers from Unix systems or proprietary mainframe platforms.

"Every year, the number of Unix systems that can be replaced by Linux grows; says Michael Tiemann, CTO of Red Hat. "First it was file and print, then Web. Now we're well into the middle tier of enterprise servers."

Red Hat will introduce its Network Workgroup service, which includes software that can tie together multiple Linux servers to be managed as a group. The service also provides access to the Red Hat Network, an online management service that automates software updating, security alert monitoring and software patch distribution.

BMC is announcing eight products that will let administrators make predeployment decisions regarding Linux server installations or migrations from other server platforms. Among the packages are Patrol for Perform, Patrol for Predict and Configuration Manager for Linux, all of which are used to evaluate **workload**, capacity and underlying **hardware requirements** of supported **applications**. Data collected on current systems with the BMC software could be used by businesses to help avoid surprises when installing Linux servers for the first time or moving from one platform to another. Such pitfalls could include performance slow-downs under heavy loads or incompatibility with custom-built applications.

Looking to help companies devise a Linux plan, HP is launching its Global Deployment Services for Linux. The service can help companies pick what systems are right for migrating from Unix to a less-expensive Linux system, and how to port applications and convert information such as user databases, network file systems and storage, HP says. The service provides companies with advice on where to use Linux, as well as installation, testing and postinstallation support of Linux servers.

Kicking off several high-end Linux mainframe and clustering announcements, IBM will roll out a Linux-only mainframe. The all-Linux mainframe could be used to consolidate servers in a corporation, and will cost less than IBM's

traditional mainframes. Previous mainframe support for Linux involved running Linux server images on top of a mainframe's OS/390 operating system.

Part of BMC's multiproduct announcement will include tools for migrating software to IBM eServer zSeries (formerly S/390) servers running Linux. Also, Serena Software will announce IBM zSeries support for its ChangeMan product, which manages the deployment and installation of enterprise applications over a network.

On the clustering front, Platform Computing will announce its Clusterware for Linux, an installation, configuration and management package for Linux clusters. Clusterware lets system managers allocate resources such as CPU utilization, monitor and configure workloads, and measure the performance of the cluster.

With lots of hardware horsepower and management products on hand, the show also will feature vendors with plenty of applications for Linux.

"In this day and age, if you are a software company and you are serious about it, you are making provisions to support Linux?" says Evan Quinn, an analyst with Hurwitz Group. This is a different story from a few years ago, when one of the biggest knocks on Linux was the lack of application support.

Sun will announce that its iPlanet Application Server, an e-commerce development platform, will work on Linux servers.

CA will announce that its ACCPAC accounting system for midsize to large corporations has been ported to the IBM DB2 database for Linux.

Jim Kirwan, an IT consultant, has installed ACCPAC on Red Hat Linux in telecom company Future Communications' offices, where more than 45 local and remote employees will access it and send mission-critical financial information from their point-of-sale systems. Kirwan, who has no previous experience with Linux, says Future chose Linux because it was inexpensive for cost-conscious retail environments to implement and easy to install.

Linux desktop company Ximian will be showing its latest Evolution desktop environment for Linux, which provides a graphical user interface as well as management tools and software-updating tools.

While interest in Linux on the desktop has lagged compared with the server version of the operating system, it has garnered some attention.

"My plan is to configure [our] workstations so that all Internet applications will run under Linux for security reasons," says Robert Cole, system administrator at Zila Pharmaceuticals in Phoenix, which uses Ximian's desktop products. Cole expects to see fewer viruses on Linux because most malicious programs are Windows-based.

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DocFinder: 7857

[www.nwfusion.com](http://www.nwfusion.com)

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GEOGRAPHIC NAMES: United States; US

DESCRIPTORS: Trade shows; Linux; Open source software; Many companies  
CLASSIFICATION CODES: 9190 (CN=United States); 7300 (CN=Sales & selling);  
5240 (CN=Software & systems)  
PRINT MEDIA ID: 15378

25/9/38 (Item 6 from file: 15)  
DIALOG(R) File 15:ABI/Inform(R)  
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**Client/server and workload characterization**

Howard, Phil

Capacity Management Review v23n10 PP: 17-22 Oct 1995 CODEN: EDPRDQ

ISSN: 0091-7206 JRNL CODE: PPR

DOC TYPE: Journal article LANGUAGE: English LENGTH: 6 Pages

SPECIAL FEATURE: Charts Equations

WORD COUNT: 2208

**ABSTRACT:** Workload forecasting for **client** /server does not **require** any particular new insights over **workload** forecasting for traditional legacy systems. Whether mainframe or client/server, the mechanisms used to map business growth to workload growth, are very much the same - finding the trends and cycles exhibited in historical data. Bernie Domanski pointed out in a session at the 1994 CMG conference that some capacity questions that workload characterization must address for these client/server environments include: 1. What server should each workload be placed on? 2. Which workloads can and cannot be mixed on servers? 3. What hardware is needed to maintain service in the face of workload growth? 4. How many more users can existing servers support? 5. If the number of transactions increases by n%, what will that do to server utilization? The questions relating to placement and mixture of workloads on servers are new. These questions cannot be answered without doing some kind of modeling, whether it be discrete event simulation, analytic queuing modeling or statistical modeling.

**TEXT:** In many respects, capacity planning in the client/server world is not that much different from the capacity planning that we have become quite good at for mainframe systems. The whole idea of workload forecasting and characterization, for example, is very similar. Workload forecasting for **client** /server does not **require** any particular new insights over **workload** forecasting for traditional legacy systems. Whether mainframe or client/server, the mechanisms used to map business growth to workload growth, are very much the same finding the trends and cycles exhibited in historical data.

As Dr. Bernie Domanski pointed out in a session at the 1994 CMG conference, some capacity questions that workload characterization must address for these C/S environments include:

- \* What server do I place each workload on?
- \* Which workloads can and cannot be mixed on servers?
- \* What hardware is needed to maintain service in the face of workload growth?
- \* How many more users can existing servers support?
- \* If the number of transactions increases by n %, what will that do to server utilization?

These questions are basically the same as we would ask for mainframes. However, the ones relating to placement and mixture of workloads on servers are new. In either case, we cannot answer those questions without doing some kind of modeling, whether it be discrete event simulation, analytic queuing: modeling, or statistical modeling.

Measurement and modeling tools. Although the toolset is not nearly as advanced and sophisticated as the toolset for mainframes, there are 39 products listed under "Modeling and Simulation" in the Institute's 1994 report, Client/Server Performance and Capacity Planning. Many of them are limited in scope, but the sheer number is an indication that the field is maturing. Typically, only large servers are modeled as if they were traditional mainframe systems. When modeling tools ignore clients and networks, expect only limited accuracy.

Still, coming up with basic modeling inputs without the right measurement sources is difficult, and this is one key problem in UNIX and

client/server. While mainframes are used to rich measurement sources (e.g., SMF and RMF in the IBM MVS environment), no sets of comparable measurements exist in the client/server world.

The curious thing is that the measurements needed are basically the same as those needed for mainframe systems: CPU utilization, I/O activity, memory usage, etc. The main difference is that these are needed for both clients and servers and should be further supplemented with what Domanski calls "locality metrics" that get at questions like: "Where did the running process execute?" and, "Where is the accessed data located?"

Depending: on the specific operating system, metrics may be marginal to nonexistent. UNIX systems provide metrics from specific sources like iostat, vmstat, and sar, but these are not really adequate. Domanski points out that a package like Hewlett-Packard's Performance Collection Software (PCS) is richer than other measurement sources, but because it is a commercial product it is not always available and is certainly not a standard.

Working with transactions.

When we talk about client/server systems, we are inevitably led to UNIX, the platform supporting the notion of so-called open systems. One underlying difficulty of UNIX capacity planning is the fact that the transaction is not a defined entity in UNIX. Speaking at the 1995 CMG conference, Julius Bleker, of IBM Corp., pointed out that UNIX maintains information internally by process, not by transaction. Thus, there are no transaction counts, transaction resource consumption figures, or response times. The applications themselves could keep track of transaction-based information, but they seldom do.

Characterizing resource utilization and response time in terms of transactions is a constructive fundamental to modeling techniques. It is up to the capacity planner, says Bleker, to define the transactions and workloads using the process information available from the operating system and/or any other information that can be extracted from the applications themselves. Since resource consumption information is maintained at the process level, the capacity planner must map the process information into transaction information, if it can be determined what processes are involved in the execution of a transaction.

The problem is that often there is no clear mapping of processes to transactions. A single process can map to a single transaction type, or a single process can map to multiple transaction types, or multiple processes can map to a single transaction type, etc. Four situations are displayed in Figure 1.

(1) Single process maps to a single transaction. This is naturally the simplest situation and applies to many systems administration and programming activities using commands such as ls, grep, find, and cd. Even some longer running commands such as cc and tar can fall in this category.

(2) Single process maps to multiple transactions. An example here might be the use of the vi editor. In a typical user session running the editor, all the resource consumption is accounted for at the level of the process. A user has only one process associated with all the activity, but the session consists of multiple transactions.

Here, about the best that can be done is to divide the total resource consumption accumulated for the process by the transaction count to give an average resource consumption for each transaction. One overriding problem still exists, however, and that is getting the transaction count. Some external counting mechanism is needed.

(3) Multiple processes map to a single transaction or multiple transactions of a single type. Examples might include a process that spawns another process, or shell scripts, or two commands connected by pipe. This is similar to case 1, except that the resource consumption of all the processes must be summed to give the transaction resource consumption. If

multiple transactions are involved, then an average should be computed based on the (external) count of transactions.

(4) Single process maps to multiple transaction types. This is the most difficult case of all. Because of the multiple transaction types, the resource consumption data cannot be averaged. Unfortunately, this is common in UNIX systems, including most RDBMS systems. Typical RDBMS systems have a few client processes for each user to handle interface and front-end processing, plus one or a few processes to handle database processing for all users. The front-end and back-end processes might even reside on different nodes. In trying to develop resource utilization data by transaction type to be used in modeling, one solution is to have users execute only a single transaction type at a time while monitoring resource consumption. In this way, resource consumption can be computed for the specific transaction without interference from other transactions. This is OK in a test or experimental environment to establish a workload characterization baseline, but would not be acceptable in a production environment.

Bleker also suggests that a linear algebra solution is available solving two equations with two unknowns. For example, the two equations may be constructed as follows if there is a single process mapped to two transaction types, the number of each type of transaction is collected for a time period, along with the total CPU process time for each period:

$$(A_{\text{sub } 1} * \text{CPU sub A}) + (B_{\text{sub } 1} * \text{CPU sub B}) = \text{CPU sub } 1$$

$$(A_{\text{sub } 2} * \text{CPU sub A}) + (B_{\text{sub } 2} * \text{CPU sub B}) = \text{CPU sub } 2$$

where:

$A_{\text{sub } 1}$  = Number of type A transaction, period 1

$A_{\text{sub } 2}$  = Number of type A transaction, period 2

CPU sub A = CPU consumed per transaction A

CPU sub B = CPU consumed per transaction B

CPU sub 1 and CPU sub 2 = Total CPU consumed during period.

$A_{\text{sub } 1}$ ,  $B_{\text{sub } 2}$ , and CPU sub 1 and CPU sub 2 are known for each time period. Since there are two equations, the two unknowns (CPU sub A and CPU sub B) can be computed. The method can be extended for situations where there are more than two transaction types, by measuring more time periods.

#### Modeling Disk I/O.

Since disk I/O is such an important part of the overall capacity planning process, understanding how UNIX handles disk I/O is necessary if it is to be modeled properly. In UNIX, most reads are handled synchronously and most writes asynchronously using a lazy write process. When a process does a disk I/O, the process is suspended, or put to sleep, and is not made executable again until the read is completed. With a write command, the write is placed in a write queue, the process continues executing, and the data is written to disk later.

From a modeling perspective, this means that reads should be considered as a part of response time, but not writes. Of course, exceptions to this rule exist. There are cases where the user can specify synchronous writes in which case they must also be considered as a part of response time. To defeat lazy write and ensure that critical data is in fact written to disk, UNIX database applications invoke `fflush` to write data synchronously. A database Commit is often implemented using `fflush`. When synchronous write activity occurs, it is necessary to include Write I/O delays in a transactions resource profile. Even when it is inaccurate to include Write I/O delay into transaction-oriented models, it is unsafe to ignore this category of disk activity entirely. By design, lazy write tries to perform disk updates during idle time. Suppose the disk is seldom idle. Although scheduled asynchronously, Write I/Os are still scheduled and often need to

be represented in an accurate model of the physical disk or disks.

Some versions of UNIX have an asynchronous I/O subsystem giving the user the option of doing asynchronous reads. From the individual user perspective, however, even an asynchronous read will be experienced as a synchronous read by the user. The user will not get the desired response until the read has been satisfied.

NFS considerations. The Network File System (NFS) is used extensively in the UNIX community so it is important to capacity planning. NFS operates in a client/server mode where the server manages the file system and clients request data from it. Possible bottlenecks exist including the client system, the network, network adapters, the server RAM and CPU, and the server disk. The server disk is the most common bottleneck.

Both reads and writes are performed synchronously under NFS so both must be included in response times (unless an NFS accelerator is configured which essentially simulates asynchronous writes). The capacity planner must also be aware of the daemon processes that handle NFS requests (nfsd on the server, biod on the client). Accordingly there are constraints on each of these that effectively act as governors on total NFS activity. For example, biod's can only have a single I/O outstanding on a server; an nfsd can only handle one request at a time. Therefore, the number of biod's and nfsd's can become a logical performance bottleneck and need to be represented in a model.

The capacity planner also has to be aware of whether a UNIX system has disk mirroring, used to increase data availability and reliability. The effect of mirroring on performance is as follows: the number of writes is multiplied by the number of mirror copies; the number of reads remains the same, but can be distributed across all the disks, possibly improving performance.

Background and foreground processes.

UNIX does not treat batch processing in the same sense as mainframes do. In UNIX, cron jobs are usually considered batches. Cron is a scheduling facility that runs a task automatically at some prescheduled time, for example a database backup at night. Cron jobs are not treated any differently than any other process, however, and compete on an equal basis with other processes for system resources. The capacity planner must be aware of when cron jobs are to be run so that they can be included in the overall workload.

Certain processes are run under UNIX in a background mode with lower priority (large NICE values) and are often considered as batch work. They do not compete on an equal basis with other processes and will take longer to run than a process not in the background. The capacity planner must make allowance for these background processes in the modeling tool.

Capacity planners should also be careful of applications that poll for useful work. They consume CPU, RAM, and even network resources just looking for work to do. Performance analysts familiar with the so-called "low utilization" effect should be familiar with this topic. Polling leads to more response-oriented systems, but plays havoc with utilization statistics when the system is lightly loaded. The overhead associated with polling diminishes as the system begins to saturate. If resource consumption appears to decrease as the volume of work increases, you may be observing the effects of polling. Some application vendors use this technique.

Summary.

Many mainframe users have capacity planning functions in place that would probably be considered mature according to Pat Artis' model of organization's capacity planning efforts. In contrast, most client/server capacity planning efforts are still in the vendor stage.

Capacity planning itself is going through a reengineering process, says Domanski. "We need a broader focus with less precision," he says, to better understand how to grow client/server applications.

25/3,K/1 (Item 1 from file: 275)  
DIALOG(R)File 275:Gale Group Computer DB(TM)  
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02509719 SUPPLIER NUMBER: 75433330 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Linux: the ideal client/server link. (Technology Information)**  
Tiemann, Michael  
Electronic Engineering Times, 102  
June 11, 2001  
ISSN: 0192-1541 LANGUAGE: English RECORD TYPE: Fulltext  
WORD COUNT: 2186 LINE COUNT: 00182

... the operating system of the connected world must scale. It must scale down to minimal **configurations** on esoteric **hardware**, and scale up to handle high- **demand** transactional **workloads** on SMP **servers**.

This is possible only through a consistent API or a hierarchical set of APIs, and...

25/3,K/2 (Item 2 from file: 275)  
DIALOG(R)File 275:Gale Group Computer DB(TM)  
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02290590 SUPPLIER NUMBER: 54467014 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Amdahl's Multi-Server Feature. (Product Information) (Brief Article)**  
Enterprise Systems Journal, 14, 4, 18(1)  
April, 1999  
DOCUMENT TYPE: Brief Article ISSN: 1053-6566 LANGUAGE: English  
RECORD TYPE: Fulltext  
WORD COUNT: 159 LINE COUNT: 00016

Amdahl provides a single-frame computer with up to four separately serialized computers within. ISV **software** can be licensed to the individual computers so customers pay fees only on **software necessary** to run a specific **workload** -- rather than paying based on the total capacity of all the servers in the frame...

25/3,K/3 (Item 3 from file: 275)  
DIALOG(R)File 275:Gale Group Computer DB(TM)  
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02010296 SUPPLIER NUMBER: 18855021 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Enterprise computing platform evolution: technology trends change as fast as fashion styles. (major trends through the history of client/server) (Technology Information) (Technical)**  
Toigo, Jon William  
Enterprise Systems Journal, v11, n10, p54(4)  
Oct, 1996  
DOCUMENT TYPE: Technical ISSN: 1053-6566 LANGUAGE: English  
RECORD TYPE: Fulltext; Abstract  
WORD COUNT: 3543 LINE COUNT: 00306

... of mainframe-style platform management, began to show as a new class of three-tier **client / server** systems with high transaction **workload demands** began to come on-line.

"Big systems management companies went through a lot of pain...

25/3,K/4 (Item 4 from file: 275)  
DIALOG(R)File 275:Gale Group Computer DB(TM)  
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01931223 SUPPLIER NUMBER: 18198683 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Benchmarks highlight RISC performance. (TPC-C ratings released for PowerPC-based IBM AS/400 servers) (Product Information)**  
Lardear, Jim  
MIDRANGE Systems, v9, n5, p1(2)

April 12, 1996  
ISSN: 1041-8237  
WORD COUNT: 577

LANGUAGE: English  
LINE COUNT: 00047

RECORD TYPE: Fulltext; Abstract

... Unlike TPC-C, which mainly tests OLTP performance with dumb terminals, the RPmark95 is a **client** /server benchmark that **requires** PCs to run three different **workloads** -- file, decision support and OLTP. Unix vendors typically embrace TPC-C, while steering clear of...

25/3,K/5 (Item 5 from file: 275)  
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01852422 SUPPLIER NUMBER: 17603043 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Capacity management for client/server architectures.**  
Domanski, Bernard  
Enterprise Systems Journal, v10, n9, p30(7)  
Sep, 1995  
ISSN: 1053-6566 LANGUAGE: English RECORD TYPE: Fulltext; Abstract  
WORD COUNT: 3415 LINE COUNT: 00301

...ABSTRACT: techniques, including statistical forecasting, simulation and benchmarking. A thorough capacity management analysis will determine what **hardware** and software will be **required** to support a given **workload**. The process, then, first **requires** the analyst to identify the composition of the workload, and through historical data, to predict...  
... estimates by statistically analyzing historical trend information and generating workload forecasts. Understanding workload forecasting for **client** /server systems does not **require** any new insight over understanding **workload** forecasting for traditional legacy systems. The problem is essentially the same: to find the trends...

25/3,K/6 (Item 6 from file: 275)  
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01621542 SUPPLIER NUMBER: 14429152 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**"Right sizing" the Information Systems, or any other, organization.**  
**(information strategy planning)**  
Davis, Richard K.  
Journal of Systems Management, v44, n10, p30(7)  
Oct, 1993  
ISSN: 0022-4839 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT  
WORD COUNT: 2092 LINE COUNT: 00178

... is processed, the current system satisfaction tells you how well current systems meet the user **needs**, and the function **workload** chart tells you what **needs** processing support given the effectiveness of current systems. By studying the workload patterns, it is...

...themselves to work station processing since the workloads are so small, unless, of course, the **workloads demand** access to central (or remote) **database machines**.

#### B. Communications Configurations

After determining the possible processing locations, tradeoffs may be made based on the communications bandwidths...

25/3,K/7 (Item 7 from file: 275)  
DIALOG(R)File 275:Gale Group Computer DB(TM)  
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01530975 SUPPLIER NUMBER: 12463236 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**PCB design software. (printed circuit board design software) (Buyers Guide)**  
Foster, Alan  
Cadcam, v11, n7, p45(3)

July-August, 1992

DOCUMENT TYPE: Buyers Guide

ISSN: 0963-5750

LANGUAGE: ENGLISH

RECORD TYPE: FULLTEXT; ABSTRACT

WORD COUNT: 773 LINE COUNT: 00060

...ABSTRACT: circuit board (PCB) computer-aided design (CAD) software package should address such issues as expected **work** load and **application requirements**, system compatibility, host **hardware**, **software** functionality and ease of installation, documentation and support. PCB software packages range from less than...

**25/3,K/8 (Item 8 from file: 275)**

DIALOG(R)File 275:Gale Group Computer DB(TM)

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01527396 SUPPLIER NUMBER: 12435755 (USE FORMAT 7 OR 9 FOR FULL TEXT)

**Rightsizing: redistributing the electronic workload.**

Ehrenreich, Doug

Telecommunications, v26, n6, p59(3)

June, 1992

ISSN: 0278-4831 LANGUAGE: ENGLISH

RECORD TYPE: FULLTEXT; ABSTRACT

WORD COUNT: 2284 LINE COUNT: 00191

... can be redistributed through an existing network of computing systems. This latter example, known as **client - server** computing, does not imply or **require** the sacrifice of existing **computers**. It simply means realigning the **workload** to match the user's **needs**.

**Client - server** computing has become a buzzword that now means many things to many people, so a...

**25/3,K/9 (Item 9 from file: 275)**

DIALOG(R)File 275:Gale Group Computer DB(TM)

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01503468 SUPPLIER NUMBER: 11947885 (USE FORMAT 7 OR 9 FOR FULL TEXT)

**Stocking your PCB toolkit. (printed circuit board) (Column)**

Gabay, Jon

Computer Design, v31, n1, p123(3)

Jan, 1992

DOCUMENT TYPE: Column ISSN: 0010-4566

LANGUAGE: ENGLISH

RECORD TYPE: FULLTEXT; ABSTRACT

WORD COUNT: 1988 LINE COUNT: 00159

... you need, the more you pay to buy, install, maintain, and upgrade. Graphing user performance **requirements** against **workload**, a design manager can identify the best choice of hardware platform. If you average only one new board design a week, it's hard to justify a high-end, expensive **hardware** / **software** platform unless special **needs** dictate it. By the same token, if you generate several board per day, it may...

**25/3,K/10 (Item 10 from file: 275)**

DIALOG(R)File 275:Gale Group Computer DB(TM)

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01416176 SUPPLIER NUMBER: 09766263 (USE FORMAT 7 OR 9 FOR FULL TEXT)

**Downsizing saves more than just dollars when it's done right.**

Nicholls, Brian

Computing Canada, v17, n1, p14(2)

Jan 3, 1991

ISSN: 0319-0161 LANGUAGE: ENGLISH

RECORD TYPE: FULLTEXT; ABSTRACT

WORD COUNT: 1304 LINE COUNT: 00103

... days is "client-server." The client-server concept is simply a method for splitting the **workload demands** placed on **computers** by **application** systems.

The work is split between the PC the user is working at and the client

...

25/3,K/11 (Item 11 from file: 275)  
DIALOG(R)File 275:Gale Group Computer DB(TM)  
(c) 2002 The Gale Group. All rts. reserv.

01380306 SUPPLIER NUMBER: 08714994 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Why CASE should extend into software performance. (computer-aided software engineering)**  
Smith, Connie U.; Williams, Lloyd G.  
Software Magazine, v10, n9, p49(8)  
July, 1990  
ISSN: 0897-8085 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT  
WORD COUNT: 4601 LINE COUNT: 00394

... to characterize workloads and calibrate the model to match existing performance metrics. They examine future **needs** by using forecasts of future workload volumes and resource **requirements**, and study **hardware configurations** that will satisfy those **needs**.

Initial **applications** of SPE supplemented capacity planners' measurements of existing workloads with models of new software in...

25/3,K/12 (Item 12 from file: 275)  
DIALOG(R)File 275:Gale Group Computer DB(TM)  
(c) 2002 The Gale Group. All rts. reserv.

01317863 SUPPLIER NUMBER: 07948862 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Compaq's EISA PC - multi-processor units. (Hardware Review) (Extended Industry Standard Architecture) (evaluation)**  
Which Computer?, p22(1)  
Dec, 1989  
DOCUMENT TYPE: evaluation ISSN: 0140-3435 LANGUAGE: ENGLISH  
RECORD TYPE: FULLTEXT; ABSTRACT  
WORD COUNT: 646 LINE COUNT: 00050

... in processors allows the upgrading of hardware as the number of users or the power **demands** of the departmental **workload** increase. The vicious circle of having to replace hardware as **requirements** change is broken.

Further, the **operating system software** needed to help these new powerful server machines will be available simultaneously. Versions of the ...

25/3,K/13 (Item 13 from file: 275)  
DIALOG(R)File 275:Gale Group Computer DB(TM)  
(c) 2002 The Gale Group. All rts. reserv.

01241379 SUPPLIER NUMBER: 06270727 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Does DEC MicroVAX 3000 outdo IBM's 9370?**  
Fertig, Robert T.  
MIS Week, v9, n1, p10(2)  
Jan 4, 1988  
ISSN: 0199-8838 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT  
WORD COUNT: 1611 LINE COUNT: 00128

... the final analysis, user requirements in terms of the number of active users, response time **needs**, processing **work load**, etc., should determine the **hardware / software configuration** and resulting price/performance differences. The vendors should not select only one or a few...

...configurations and then attempt to form a conclusion which is usually biased. A range of **hardware / software configurations** and benchmarks must be developed that represent the real world environment. Only then can

we...

25/3,K/14 (Item 14 from file: 275)  
DIALOG(R)File 275:Gale Group Computer DB(TM)  
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01212363 SUPPLIER NUMBER: 04617792 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**NetWare buries IBM PC network in speed tests. (PC Week Connectivity supplement)**  
PC Week, v4, n3, pC1(5)  
Jan 20, 1987  
ISSN: 0740-1604 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT  
WORD COUNT: 3401 LINE COUNT: 00273

... Innovative Software, of Lenexa, Kan., was used to run the actual performance tests under varying **application** and **workload** environments. The test **software** **requires** one **workstation** on the network to be a test control station; other workstations run the simulated workload...

25/3,K/15 (Item 15 from file: 275)  
DIALOG(R)File 275:Gale Group Computer DB(TM)  
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01040951 SUPPLIER NUMBER: 00570277  
**Computerized Directory Assistance System Allows GSA to Locate Government Employees.**  
Communications News, v20, n2, p37  
Feb., 1983  
ISSN: 0010-3632 LANGUAGE: ENGLISH RECORD TYPE: ABSTRACT

...ABSTRACT: agency recently decided that an automated directory assistance system was needed to handle the increasing **workload** and data base **requirements**. After Requests for Bids were offered to commercial suppliers capable of providing such a system...

...the company provided the agency with three supervisors, four update clerks, regular system maintenance, documentation, **operating** training, and all **software** **required** for the system. Each operator CRT is designed to provide quick access to the data...

25/3,K/16 (Item 1 from file: 583)  
DIALOG(R)File 583:Gale Group Globalbase(TM)  
(c) 2002 The Gale Group. All rts. reserv.

06421623  
Atk:n pUivitys 2000-luvulle nielee miljardeja markkoja  
FINLAND: STEEP COST OF UPDATING COMPUTER SYSTEMS  
Helsingin Sanomat (XFB) 24 Jan 1997 p.A5  
Language: FINNISH

As the turn of the millennium, it is crucial to make the **necessary** adjustments in the updating systems of **computer** **software** in good time to enable the systems to handle data from the year 2000 onwards...

... forecasts that the combination of the year 2000 and the introduction of the euro will **require** such a huge **work** **load** that there will be shortage of computer specialists in Europe. A representative of the Ministry...

25/3,K/17 (Item 1 from file: 47)  
DIALOG(R)File 47:Gale Group Magazine DB(TM)  
(c) 2002 The Gale group. All rts. reserv.

02949329 SUPPLIER NUMBER: 04620338 (USE FORMAT 7 OR 9 FOR FULL TEXT)

NetWare buries IBM PC network in speed tests. (computer network)

PC Week, v4, pC1(3)

Jan 20, 1987

LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT

WORD COUNT: 3401 LINE COUNT: 00273

... Innovative Software, of Lenexa, Kan., was used to run the actual performance tests under varying **application** and **workload** environments. The test **software** **requires** one **workstation** on the network to be a test control station; other workstations run the simulated workload...

25/3,K/18 (Item 1 from file: 621)

DIALOG(R)File 621:Gale Group New Prod.Annou.(R)

(c) 2002 The Gale Group. All rts. reserv.

02940971 Supplier Number: 76693285 (USE FORMAT 7 FOR FULLTEXT)

**VMware Launches Virtualization Software for Windows-Based Intel Servers.**

PR Newswire, pNA

July 23, 2001

Language: English Record Type: Fulltext

Document Type: Newswire; Trade

Word Count: 1115

... Server significantly increases the options available to IT managers who want to use industry-standard **hardware** for applications that **require** similar **workload** management capabilities, such as server consolidation or high-end service provider environments."

Rapid customer acceptance...

25/3,K/19 (Item 2 from file: 621)

DIALOG(R)File 621:Gale Group New Prod.Annou.(R)

(c) 2002 The Gale Group. All rts. reserv.

02748967 Supplier Number: 67579212 (USE FORMAT 7 FOR FULLTEXT)

**VMware Enables Intel Server Customers to Scale Their Internet Computing Infrastructures Safely, Reliably, and On Demand.**

PR Newswire, pNA

Dec 5, 2000

Language: English Record Type: Fulltext

Document Type: Newswire; Trade

Word Count: 1475

... in server environments can:

Consolidate Servers

Because many virtual machines can run on a single **server**, the number of computers **required** to perform the same **workload** is dramatically reduced. This saves on hardware costs, floor space, and IT fixed skills costs...

25/3,K/20 (Item 3 from file: 621)

DIALOG(R)File 621:Gale Group New Prod.Annou.(R)

(c) 2002 The Gale Group. All rts. reserv.

02639226 Supplier Number: 65158645 (USE FORMAT 7 FOR FULLTEXT)

**Dialogic Showcases Building Block Solutions for Next-Generation Services At Fall VON 2000; Advanced, Speech-Enabled Services Take Center Stage in Atlanta.**

Business Wire, p2314

Sept 12, 2000

Language: English Record Type: Fulltext

Document Type: Newswire; Trade

Word Count: 476

... an integrated feature on its voice processing platforms, Dialogic is unique in reducing host-based **workload** without **requiring** additional

**hardware** . The enhanced technology also enables **application** to recognize voice commands more accurately, making them easier to use and increasing customer satisfaction...

25/3,K/21 (Item 4 from file: 621)  
DIALOG(R)File 621:Gale Group New Prod.Annou.(R)  
(c) 2002 The Gale Group. All rts. reserv.

02582054 Supplier Number: 63629788 (USE FORMAT 7 FOR FULLTEXT)  
**IDC Expects Strong Shipment Growth but Flat Revenues in the Market for Server Operating Environments.**  
PR Newswire, p5573  
July 24, 2000  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 570

... The need to support Internet and ecommerce applications as well as traditional online transaction processing, **database** , file print, and **application workloads** will drive demand for **server operating environments**.

According to IDC, the big news in the server operating environment market is the...

25/3,K/22 (Item 5 from file: 621)  
DIALOG(R)File 621:Gale Group New Prod.Annou.(R)  
(c) 2002 The Gale Group. All rts. reserv.

02509532 Supplier Number: 62284404 (USE FORMAT 7 FOR FULLTEXT)  
**Intel Introduces New Technology to Advance Speech-Based Web Access; New Continuous Speech Processing Technology Enables Voice Portals.**  
Business Wire, p1348  
May 24, 2000  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 767

... an integrated feature on its voice processing platforms, Dialogic is unique in reducing host-based **workload** without **requiring** additional **hardware** . The enhanced technology also enables **applications** to recognize voice commands more accurately, making them easier to use and increasing customer satisfaction...

25/3,K/23 (Item 6 from file: 621)  
DIALOG(R)File 621:Gale Group New Prod.Annou.(R)  
(c) 2002 The Gale Group. All rts. reserv.

01140971 Supplier Number: 41270280 (USE FORMAT 7 FOR FULLTEXT)  
**BOEING HELICOPTERS USES GROUP TECHNOLOGY SOFTWARE TO IMPROVE COMPOSITE PARTS DESIGN, REDUCE COSTS**  
News Release, p1  
April 9, 1990  
Language: English Record Type: Fulltext  
Document Type: Magazine/Journal; Trade  
Word Count: 663

... manufacturing information. Part features, feature relationships -- and such production data as current and future production **requirements** , production **equipment** and **workload programs** , part operation routings, machine load information, weight, and cost amounts -- are contained within each data...

25/3,K/24 (Item 7 from file: 621)

DIALOG(R)File 621:Gale Group New Prod.Annou.(R)  
(c) 2002 The Gale Group. All rts. reserv.

01033638 Supplier Number: 39970800 (USE FORMAT 7 FOR FULLTEXT)  
**DIGITAL PRODUCTS UNVEILS PRINTDIRECTOR 6 FAMILY OF INTELLIGENT BUFFERED  
DATA SWITCHES FOR LOW-COST LASER PRINTER SHARING**  
PR Newswire, pN/A  
Feb 18, 1987  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 805

... added that intelligent switches available to date do not  
provide distributed printing features users now **require** for higher  
**work load applications** .

" PC users want to select a variety of printers from a menu, and they  
want the...

**25/3,K/25 (Item 1 from file: 636)**  
DIALOG(R)File 636:Gale Group Newsletter DB(TM)  
(c) 2002 The Gale Group. All rts. reserv.

05126048 Supplier Number: 78637243 (USE FORMAT 7 FOR FULLTEXT)  
**CAVEAT EMPTOR. (Intel's new Pentium 4 microprocessor)**  
Computer Aided Design Report, pNA  
May, 2001  
Language: English Record Type: Fulltext  
Document Type: Newsletter; Trade  
Word Count: 3072

... a new microarchitecture," asserts George Alfs, the Pentium 4  
product manager, in an e-mail. " **Software needs** to take advantage of the  
new **hardware** we have put in place." Alfs says customers already will see  
"huge boosts in performance...robust 3.2 gigabytes per second. Even when  
not refined for the architecture, Alfs claims, **workloads** that **require**  
the movement of lots of data between the CPU and memory "will also scale  
very...

**25/3,K/26 (Item 2 from file: 636)**  
DIALOG(R)File 636:Gale Group Newsletter DB(TM)  
(c) 2002 The Gale Group. All rts. reserv.

04094257 Supplier Number: 53892107 (USE FORMAT 7 FOR FULLTEXT)  
**AMDAHL: Amdahl innovations help customers save time and money.**  
M2 Presswire, pNA  
Feb 16, 1999  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 893

... is providing a single-frame computer with up to four separately  
serialized computers within. ISV **software** can be licensed to the individual  
computers so customers pay fees only on **software necessary** to run a  
specific **workload** - rather than paying based on the total capacity of all  
the servers in the frame...

**25/3,K/27 (Item 3 from file: 636)**  
DIALOG(R)File 636:Gale Group Newsletter DB(TM)  
(c) 2002 The Gale Group. All rts. reserv.

01252505 Supplier Number: 41319970 (USE FORMAT 7 FOR FULLTEXT)  
**Boeing Helicopters Using Group Technology Software To Improve Composite  
Parts Design**  
CIMWEEK, v3, n12, pN/A

May 7, 1990  
Language: English Record Type: Fulltext  
Document Type: Magazine/Journal; Trade  
Word Count: 598

... manufacturing information. Part features, feature relationships -- and such production data as current and future production **requirements**, production **equipment** and **workload programs**, part operation routings, machine load information, weight, and cost amounts -- are contained within each data...

25/3,K/28 (Item 1 from file: 16)  
DIALOG(R)File 16:Gale Group PROMT(R)  
(c) 2002 The Gale Group. All rts. reserv.

03496719 Supplier Number: 44891648 (USE FORMAT 7 FOR FULLTEXT)  
**Clocking Client/Server Performance**  
Network Computing, p73  
August 1, 1994  
Language: English Record Type: Fulltext  
Document Type: Magazine/Journal; Trade  
Word Count: 1338

... some enterprising company.  
Of course, none of these benchmarks is likely to test your specific **client / server workload** and functionality **requirements**. Instead of trying to interpret irrelevant benchmark data, consider 'rolling your own.' You need to...

25/3,K/29 (Item 1 from file: 160)  
DIALOG(R)File 160:Gale Group PROMT(R)  
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01788284  
**IRWIN EXPANDS TAPE BACKUP NETWORKING CAPABILITIES**  
News Release September 9, 1987 p. 1

... follow help screens, and EzStart (TM) automatic backup initiation. Multi-user backup and network bridging. **Workload** volumes or system **requirements** may dictate that each workstation in a LAN be equipped with its own backup system...

...same LAN. To back up selected files, the user routes these files through the network **server**'s hard disk to the designated backup **workstation**. EzTape **software** fully supports LANS which are **configured** with Novell Advanced Netware's "network bridging" in which multiple servers are used.  
Full text...

25/3,K/30 (Item 1 from file: 148)  
DIALOG(R)File 148:Gale Group Trade & Industry DB  
(c)2002 The Gale Group. All rts. reserv.

12134916 SUPPLIER NUMBER: 60120045 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Transport of Men and Materials.**  
Hindle, Dave  
World Tunnelling, 13, 1, 41  
Jan, 2000  
LANGUAGE: English RECORD TYPE: Fulltext  
WORD COUNT: 3703 LINE COUNT: 00323

... most hard rock and tunnelling applications in either standard production models, and are available for **applications requiring** special design.

Mining **Equipment** Inc. provides a wide range of remanufactured tunnelling and mining equipment specialising in locomotives and...

...cycle time is not restricted by having an inadequate haulage system. The size of locomotives **required** for given **workloads** is calculated from the loads, gradients and other track configurations that are specified, after which...

25/3,K/31 (Item 2 from file: 148)  
DIALOG(R)File 148:Gale Group Trade & Industry DB  
(c)2002 The Gale Group. All rts. reserv.

06497987 SUPPLIER NUMBER: 14152862 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Disaster management: hot news in hot site selection. (includes related article)**  
Foster, Al  
Security Management, v37, n4, p65(8)  
April, 1993  
ISSN: 0145-9406 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT  
WORD COUNT: 5162 LINE COUNT: 00413

... team is crucial to the success of the project. It should be no larger than **necessary** to complete the associated **work load**; however, it is vital that the people chosen be highly competent and knowledgeable in project management of **computer hardware** performance and capacity **requirements**, network **hardware** performance and capacity **requirements**, network protocols, **operating systems requirements**, **application software requirements**, facilities and environmental requirements, and technical staffing requirements for the hot site team.  
Once the...

25/3,K/32 (Item 3 from file: 148)  
DIALOG(R)File 148:Gale Group Trade & Industry DB  
(c)2002 The Gale Group. All rts. reserv.

05135869 SUPPLIER NUMBER: 10423558 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**How to put computers to work in the CPA office: new trends in software and hardware are making technology user-friendly.**  
Zarowin, Stanley  
Journal of Accountancy, 171, n2, 46(6)  
Feb, 1991  
ISSN: 0021-8448 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT  
WORD COUNT: 4255 LINE COUNT: 00319

... be performed simultaneously, if needed. That's called multitasking. For Windows to manage this heavy **work load**, it **needs** both added **software** and **hardware**. Most major **software** developers, recognizing that Windows is the wave of the future-or at least the next...

25/3,K/33 (Item 1 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
(c) 2002 ProQuest Info&Learning. All rts. reserv.

02303872 103219799  
**Using Linux to get easier**  
Hochmuth, Phil; Connor, Deni  
Network World v19n4 PP: 1, 13 Jan 28, 2002  
ISSN: 0887-7661 JRNL CODE: NWW  
WORD COUNT: 806

...TEXT: Patrol for Predict and Configuration Manager for Linux, all of which are used to evaluate **workload**, capacity and underlying **hardware requirements** of supported **applications**. Data collected on current systems with the BMC software could be used by businesses to...

25/3,K/34 (Item 2 from file: 15)

DIALOG(R)File 15:ABI/Inform(R)  
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01968272 47697923

**Taxed to the max**

Liebmann, Lenny  
Informationweek n767 PP: 61-64 Jan 3, 2000  
ISSN: 8750-6874 JRNL CODE: IWK  
WORD COUNT: 2443

ABSTRACT: E-business is having a radical impact on business data centers. Round-the-clock **workloads** **require** new architectures and active management only thought about in the past. Systems and servers are rapidly proliferating as Web contingencies place greater **demands** on traditional IT infrastructures. The **demands** on **devices** acting as Web **servers**, **application servers**, content servers, firewalls, load balancers, and storage systems are greater than ever. The need to...

**25/3,K/35 (Item 3 from file: 15)**

DIALOG(R)File 15:ABI/Inform(R)  
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01496881 01-47869

**A ring of servers: R/3 system has a new workhorse in IBM's S/390**

Anonymous  
Manufacturing Systems v15n3 PP: 28 Mar 1997  
ISSN: 0748-948X JRNL CODE: MFS  
WORD COUNT: 575

...TEXT: enterprise applications. Using the availability of S/390 and the DB2 for OS/390 relational **database**, users can meet various **application needs** and transaction **workloads**. They have an **operating** system capable of supporting tens of thousands of transactions per minute, by tens of thousands...

**25/3,K/36 (Item 4 from file: 15)**

DIALOG(R)File 15:ABI/Inform(R)  
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01189418 98-38813

**Client/server capacity planning and hardware resource usage metrics, trends, and relationships**

Major, Joe  
Capacity Management Review v24n2 PP: 3-9 Feb 1996  
ISSN: 0091-7206 JRNL CODE: PPR  
WORD COUNT: 4620

...TEXT: I/O access density is  $15/3 = 5$ . This is quite normal for 1995 vintage **Client / Server** systems. The **workload** growth will **necessitate** another 2 gigabytes of disk storage, you are told. You calculate the new AD and...

...16 to 81), and looks about right. Scenario 2 Same platform as today, add new **applications** to current load Estimating **hardware** resource **requirements** of new **applications** has never been particularly easy. The capacity planner would involve the application and data designers...

... Together, they would try to size the processing, disk I/O, memory and disk storage **requirements** of the average **workload** unit (transaction) of the new application mix. Workload unit volume estimates would come from marketing...

**25/3,K/37 (Item 5 from file: 15)**

DIALOG(R)File 15:ABI/Inform(R)  
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01146311 97-95705

**Business simulations: The next step in management training**

Cadotte, Ernest R

Selections PP: 8-15+ Autumn 1995

ISSN: 0882-0228 JRNL CODE: SEL

WORD COUNT: 4795

...TEXT: or countermoves.

Business simulations have only lately begun to reach their full potential. Until recently, **hardware** constraints, software-design **requirements**, and student **work - load** considerations limited the depth and breadth of decision making that could be modeled. New developments...

**25/3,K/38 (Item 6 from file: 15)**

DIALOG(R)File 15:ABI/Inform(R)

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01134045 97-83439

**Client/server and workload characterization**

Howard, Phil

Capacity Management Review v23n10 PP: 17-22 Oct 1995

ISSN: 0091-7206 JRNL CODE: PPR

WORD COUNT: 2208

ABSTRACT: Workload forecasting for **client /server** does not **require** any particular new insights over **workload** forecasting for traditional legacy systems. Whether mainframe or client/server, the mechanisms used to map...

...TEXT: whole idea of workload forecasting and characterization, for example, is very similar. Workload forecasting for **client /server** does not **require** any particular new insights over **workload** forecasting for traditional legacy systems. Whether mainframe or client/server, the mechanisms used to map...

**25/3,K/39 (Item 7 from file: 15)**

DIALOG(R)File 15:ABI/Inform(R)

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00744039 93-93260

**Turf wars: Records management vs. data processing**

Gable, Julie

Records Management Quarterly v27n3 PP: 18-21+ Jul 1993

ISSN: 1050-2343 JRNL CODE: RMQ

WORD COUNT: 3183

...TEXT: and analysis that may have taken weeks or months; similarly, the coding for a new **computer program** occurs only after **requirements** analysis and definition, a process that can be complex and lengthy (especially when users keep changing their minds). Both records and MIS departments are hard pressed to demonstrate why increased **workload requires** additional headcount. Notice, however, that the people who staff records departments and MIS departments are...

**25/3,K/40 (Item 8 from file: 15)**

DIALOG(R)File 15:ABI/Inform(R)

(c) 2002 ProQuest Info&Learning. All rts. reserv.

00704666 93-53887

**Hot news in hot site selection**

Foster, Al

Security Management v37n4 PP: 65-72 Apr 1993

ISSN: 0145-9406 JRNL CODE: SEM

WORD COUNT: 4836

...TEXT: team is crucial to the success of the project. should be no larger than **necessary** to complete the associated **work load** ; however, it is vital that the people chosen be highly competent and knowledgeable in project management of **computer hardware** performance and capacity **requirements** , network **hardware** performance and capacity **requirements** , network protocols, **operating** systems **requirements** , **application software** **requirements** , facilities and environmental requirements, and technical staffing requirements for the hot site team.

Once the...

25/3,K/41 (Item 9 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
(c) 2002 ProQuest Info&Learning. All rts. reserv.

00655519 93-04740

**Holding the Reins on Distributed Databases**

Wolfson, Ken

Chief Information Officer Journal v5n2 PP: 48-51 Fall 1992

ISSN: 0899-0182 JRNL CODE: CJL

WORD COUNT: 1664

...TEXT: to the central database using the remote request or remote unit of work.

CONCLUSION

Distributed **database** and **client / server** technologies respond to the **demands** of flatter organizations by facilitating the development of workgroup solutions and providing broader access to...

... distributed database is not a panacea. It is neither a short-term solution to the **demands** of increasing application **workloads** , nor is it a viable means of reducing expenses by leveraging "cheaper MIPS." Moreover, support...

25/3,K/42 (Item 10 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
(c) 2002 ProQuest Info&Learning. All rts. reserv.

00629935 92-44875

**Charting: The Impact of Bedside Computers**

Lower, Mary S.; Nauert, Lois B.

Nursing Management v23n7 PP: 40-44 Jul 1992

ISSN: 0744-6314 JRNL CODE: NSM

...ABSTRACT: June 1, 1987, and running through February 12, 1990, provides some insight into whether convenient **terminals** with **programs** geared to operational **needs** really do save time. A time series study and a nursing functions study showed a...

... increase in charting time appears to be a combination of charting that resulted from unit **workload** increases and that charting previously **requiring** overtime to finish was being completed within standard shift times at the bedside computer. ...

25/3,K/43 (Item 11 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
(c) 2002 ProQuest Info&Learning. All rts. reserv.

00586596 92-01769

**Computer Performance Management: Conceptual Considerations from an Operations Research Perspective**

Reid, Richard A.; Asprey, Peter L.

Capacity Management Review v19n11 PP: 3-6 Nov 1991

...TEXT: an understanding of their operational environment that includes the following four characteristics:(14)

1. System **hardware** mechanisms and **software** operations,
2. **Workload** processing **requirements** ,
3. End-user habits and expectations, and
4. The relationship between system performance attributes and...

25/3,K/44 (Item 12 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
(c) 2002 ProQuest Info&Learning. All rts. reserv.

00424822 88-41655

**Equipment Leasing -- What's in It for Your Company?**

Harrington, Bill

Telephone Engineer & Management v92n20 PP: 54-58 Oct 15, 1988

ISSN: 0040-263X JRNL CODE: TEM

ABSTRACT: It is not always practical for a telephone company to own all of the **equipment** it **needs** . Leasing **equipment** is an alternative to purchasing **equipment** . The benefits of a lease **program** include minimizing capital outlays, ownership commitments, and equipment use, as well as providing the balance of equipment **needs** during peak **workloads** . Many different types of equipment leases are available to companies. A finance lease is a...

25/3,K/45 (Item 13 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
(c) 2002 ProQuest Info&Learning. All rts. reserv.

00219625 83-31186

**Implementing an Automated Inventory System**

Shultz, Sonya M.; Kannen, William

Hospital Materiel Management Quarterly v5n2 PP: 25-31 Nov 1983

ISSN: 0192-2262 JRNL CODE: HMM

...ABSTRACT: users was formed to evaluate the manual system of inventory management and to determine the **hardware** and **software requirements** of an automated system. Goals for automation were identified. These goals emphasized reducing the costs...

... of outside computing was eliminated. The automated system allowed the purchasing department to increase its **work load** while cutting time **required** for the work. ...

25/3,K/46 (Item 14 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
(c) 2002 ProQuest Info&Learning. All rts. reserv.

00197907 83-09468

**Data Center Personnel Help Peel-Away Problems**

Cox, David A.

Data Management v21n3 PP: 19, 38-40 Mar 1983

ISSN: 0148-5431 JRNL CODE: DMG

...ABSTRACT: this feasibility include: 1. establishment of policy guidelines for service levels, system life, and operational **requirements** , 2. identification of present **workloads** , and 3. forecasting future workloads. The data center personnel should take the lead in: 1.

determining **hardware** systems **software** requirements , 2.  
identifying the telecommunications network to be used for the system, and  
3. preparing the...

25/3,K/47 (Item 15 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
(c) 2002 ProQuest Info&Learning. All rts. reserv.

00144647 81-14517

**Select Software First**

Anonymous

Systems & Software Review vln6 PP: 9-10 1980

JRNL CODE: SSR

ABSTRACT: **Software** requirements should be considered prior to **hardware** needs , especially when thinking of future data processing (DP) growth. Too often, **hardware** advances take precedence over **software** requirements . User requirements most often revolve around software design, and user needs are the prime consideration when planning...

...growth. Current systems and capacities should be reviewed prior to implementation of new systems. Future **workload** and user **demands** on the system must be determined. It is sometimes a good idea to have system...

25/3,K/48 (Item 16 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
(c) 2002 ProQuest Info&Learning. All rts. reserv.

00121139 80-15108

**P-M for On-Line Response**

Anonymous

Systems & Software Review vln2 PP: 3-5 May 1980

JRNL CODE: SSR

...ABSTRACT: developed for on-line systems that will prevent the user community from unexpectedly outgrowing the **computer** system. This type of **program** requires that managers know: 1. the current on-line system performance and capacity, 2. the level...

...access use. System goals should include knowledge of acceptable response time, allowable down time, recovery **requirements** , and **workload** support. Future **needs** should be evaluated for growth trends, requirements for each user or application, schedules, and current...

25/3,K/49 (Item 1 from file: 635)  
DIALOG(R)File 635:Business Dateline(R)  
(c) 2002 ProQuest Info&Learning. All rts. reserv.

0788503 97-47154

**Portland-based Benova suffers cash crunch, files for bankruptcy**

Woodward, Steve

Oregonian (Portland, OR, US) pD1

PUBL DATE: 970214

WORD COUNT: 515

DATELINE: Portland, OR, US, Pacific

TEXT:

...to a trade newsletter, Managed Medicare & Medicaid News. But the state failed to provide the **computer** **hardware** and software **required** to handle **workloads** that rose nearly tenfold, the newsletter reported.

By September, Benova's 350 California workers were...

25/3,K/50 (Item 2 from file: 635)  
DIALOG(R)File 635:Business Dateline(R)  
(c) 2002 ProQuest Info&Learning. All rts. reserv.

0304467 92-51077

**Laserfile International Signs With Document Technologies**

Sweat, Craig

Business Wire (San Francisco, CA, US) sl pl

PUBL DATE: 920623

WORD COUNT: 488

DATELINE: Kenner, LA, US

TEXT:

...Laserfile. "As customers grow, we have to provide systems that can handle the ever increasing **workload**, but without **requiring** changes in their existing **hardware** and **software** environments. We selected DTI because their PC components give us that flexibility."

Laserfile's business...

25/3,K/51 (Item 1 from file: 9)  
DIALOG(R)File 9:Business & Industry(R)  
(c) 2002 Resp. DB Svcs. All rts. reserv.

03353561 (USE FORMAT 7 OR 9 FOR FULLTEXT)

**BMC Unleashes Linux Barrage**

(BMC Software)

Linuxgram, n 202, p N/A

January 28, 2002

DOCUMENT TYPE: Newsletter (United States)

LANGUAGE: English RECORD TYPE: Fulltext

WORD COUNT: 514

(USE FORMAT 7 OR 9 FOR FULLTEXT)

TEXT:

...go on IBM zSeries mainframes in June. Besides providing customers the ability to allocate their **hardware** choices based on **workload needs**, the new **programs** are also supposed to let them define topologies such as networks, databases and files required...

25/3,K/52 (Item 1 from file: 810)  
DIALOG(R)File 810:Business Wire  
(c) 1999 Business Wire . All rts. reserv.

0979481 BW1270

**CA AMDAHL: Amdahl Innovations Help Customers Save Time and Money**

February 16, 1999

Byline: Business Editors/High Tech Editors

...is providing a single-frame computer with up to four separately serialized computers within. ISV **software** can be licensed to the individual computers so customers pay fees only on **software necessary** to run a specific **workload** --rather than paying based on the total capacity of all the servers in the frame...

25/3,K/53 (Item 1 from file: 647)  
DIALOG(R)File 647:CMP Computer Fulltext  
(c) 2002 CMP Media, LLC. All rts. reserv.

01238122 CMP ACCESSION NUMBER: EET20010611S0063

**Linux: the ideal client/server link**

Michael Tiemann, Chief Technical Officer, Red Hat Inc., Research Triangle Park, N.C.

ELECTRONIC ENGINEERING TIMES, 2001, n 1170, PG102

PUBLICATION DATE: 010611

JOURNAL CODE: EET LANGUAGE: English

RECORD TYPE: Fulltext

SECTION HEADING: COMMUNICATIONS - FOCUS: NET-CENTRIC FRAMEWORKS

WORD COUNT: 2027

... the operating system of the connected world must scale. It must scale down to minimal **configurations** on esoteric **hardware**, and scale up to handle high-**demand** transactional **workloads** on SMP **servers**.

This is possible only through a consistent API or a hierarchical set of APIs, and...

**25/3,K/54 (Item 2 from file: 647)**

DIALOG(R)File 647:CMP Computer Fulltext

(c) 2002 CMP Media, LLC. All rts. reserv.

01032111 CMP ACCESSION NUMBER: NWC19940801S0040

**Clocking Client/Server Performance**

David McGoveran

NETWORK COMPUTING, 1994, n 509, P73

PUBLICATION DATE: 940801

JOURNAL CODE: NWC LANGUAGE: English

RECORD TYPE: Fulltext

SECTION HEADING: Client/Server Databases

WORD COUNT: 1263

... some enterprising company.

Of course, none of these benchmarks is likely to test your specific **client / server workload** and functionality **requirements**. Instead of trying to interpret irrelevant benchmark data, consider ``rolling your own.'' You need to...

**25/3,K/55 (Item 1 from file: 613)**

DIALOG(R)File 613:PR Newswire

(c) 2002 PR Newswire Association Inc. All rts. reserv.

00658583 20011016SFTU075 (USE FORMAT 7 FOR FULLTEXT)

**Processor Triathletes Outrun Sprintersencesnerter Results**

PR Newswire

Tuesday, October 16, 2001 15:02 EDT

JOURNAL CODE: PR LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT

DOCUMENT TYPE: NEWSWIRE

WORD COUNT: 1,354

...computing has emerged as the high growth technology segment for this decade. Applications and computing **workloads** have followed suit, emphasizing **needs** to reliably process many tasks in parallel.

System requirements for these machines include a balanced...

...and serviceability. Rather than budgeting transistors to simply achieve high clock speeds, the multidimensional system **requirements** of networked **client / server** systems call for balanced budgeting of processor transistors to achieve multi-axis system performance goals...

27/9/4 (Item 1 from file 674)  
DIALOG(R)File 674:Computer News Fulltext  
(c) 2002 IDG Communications. All rts. reserv.

090496

**Smartcard review how we did it**

Journal: Network World Page Number: 51

Publication Date: January 15, 2001

Word Count: 428 Line Count: 39

**Text:**

We installed the Alacritech 100x4 NIC in a Dell PowerEdge 6400 along with four Intel Pro100+ NICs. We ran a suite of four tests against the PowerEdge 6400 with the Intel NICs enabled and the Alacritech NIC disabled. We then reran all tests with the Alacritech NIC enabled and the Intel NICs disabled. This process was repeated with the Dell server in a single-processor configuration and a four-processor configuration. Intel Pro100+ NICs were used because they are the most pervasive models of NIC in the server market. Twelve clients were used to create a workload for the server configuration under test. Six of the clients are four-processor machines with RAM amounts ranging from 512M to 2048M bytes. The remaining six clients are two-processor machines with RAM amounts ranging from 256M to 1,024M bytes. The clients were divided into four IP subnets. Each of these subnets corresponds to one of four subnets representing one of the four enabled NIC ports on the server. All clients and server NIC ports are connected to a Cisco 2948 Ethernet switch. All switch ports and NICs are configured for 100M bit/sec full-duplex operation, thus disabling Ethernet autonegotiation. The suite of tests consists of a network file read test, a MSSQL database test, a random read/write file test and a sequential read/write file test. The tests were implemented using Benchmark Factory from Quest Software. The network file read test sequentially reads a 1G-byte file from the server from all clients simultaneously. The random read/write file test does random simultaneous reads and writes from the server. The Sequential read/write file test does random simultaneous reads and writes from the server. The MSSQL database test invokes two types of SQL statements to an instance of MSSQL 7.0 Enterprise running on the Dell server. One statement is very CPU intensive, generating a few transactions per second, and the other statement has minimal impact on CPU utilization, generating large numbers of transactions per second. In each test, the number of virtual users is increased to obtain a performance curve. Multiple concurrent virtual users can be run from one machine, simulating large numbers of users on many client machines. No information as to the maximum number of supported users by the Dell server, Intel NICs, Alacritech NICs or any of the related software can be derived from the results of these tests. During the network file read test, the NT performance monitor is invoked when there is a low number of virtual users to get a comparison of CPU utilization between the two NIC manufacturers for one- and four-CPU server configurations.

27/9/5 (Item 2 from file: 674)  
DIALOG(R)File 674:Computer News Fulltext  
(c) 2002 IDG Communications. All rts. reserv.

077787

**Network fire prevention**

You'll need a tool kit that includes performance monitoring gear, application modeling tools and, soon, neural network software.

Byline: PAUL DESMOND

Journal: Network World Page Number: 49

Publication Date: September 20, 1999

Word Count: 2108 Line Count: 192

**Text:**

It's the universal complaint of the network executive: you spend too much time running around fighting fires - attending to the various network flare-ups that threaten to bring down your business. But it doesn't have to be that way. There are tools available today that, while perhaps stopping short of fire-proofing your network, will lead you to where brush fires are

starting, giving you time to douse the flames before they use any real damage. At the most basic level, performance monitoring tools help you get a lead on your normal network performance and perform trend analysis to determine when things are deviating from that norm. That won't fix your problems, but at least it will point you to where trouble spots are developing in time for you to take corrective actions. There are dozens of performance monitoring tools available - from vendors including Concord Communications, FirstSense, Ganymede Software, International Network Services (INS), NextPoint Networks and Tavve Software - many of which get rave reviews from users. Modeling tools hold another key to predictive net management. Vendors, including Ganymede, MIL 3 and Optimal Networks, offer tools that can help you predict what the addition of a new application or other changes will mean to your network performance. In some cases, the tools enable you to conduct stress tests and what-if scenarios, such as predicting the effect on response time of adding another 100 SAP R/3 users. "That's proactive in that you can start to find envelopes of behavior where you can function normally and where you're going to start getting in trouble," says John McConnell, president of McConnell Consulting in Boulder, Colo. Lurking on the horizon is neural network technology, which promises to further the predictive network management cause even more. Computer Associates already has neural agents, dubbed Neugents, for predicting impending doom on NT servers. The devices "learn" about the behavior of the system they're monitoring and can give advance warnings when situations occur that have led to problems in the past. The company expects to deliver Neugents for routers and switches by year-end. Baselining and performance monitoring tools, such as Concord's Network Health and Ganymede's Pegasus, generally paint a picture of what your network performance looks like under normal, everyday conditions, and then point you to areas in which performance is subpar. Depending on the modules you implement, you can get reports on network performance or on network and application performance. Ganymede, for example, offers a severity index based on a composite of availability, response time and throughput exceptions. Based on a scale of one to 100, the index helps you identify which elements are operating farthest out of their normal range, theoretically pointing you to the source of a performance problem. Pegasus also provides a trend index that shows which elements are changing most rapidly. "It points you to the issues that will make the phones ring next week," such as a frame relay link that is operating at an unusually high utilization rate, says Jim McQuaid, director of monitoring solutions at Ganymede. Nortel Networks is nearly done deploying Pegasus on its worldwide WAN, says Peter Massam, network management technologist for the company in its Maidenhead, England, network operations center. "The first real useful data to come out of this was the aggregated views we had of our locations," Massam says. "We could see full application performance by region and identify the hot spots to concentrate on." For example, the product helped him troubleshoot a nagging performance problem on a link between the U.K. and Madrid. Pegasus confirmed that application response time was subpar and indicated it was due to sluggish throughput on the link. Bumping up the speed of the link quickly cured the problem. Similarly, Massam says, Pegasus has pointed Nortel to frame relay links that were underutilized, meaning Nortel was paying for more bandwidth than it needed given the amount of traffic flowing over the link. The company was able to lower the committed information rate on those links, saving money. Jim Gross, manager of telecommunications for Lockheed Martin in Research Triangle Park, N.C., has had similarly positive results with Tavve's performance monitoring tool, which he has been using for about a year. "It points us to a pending problem almost weekly," he says. For example, the Tavve tool alerted Lockheed to abnormal bandwidth usage that threatened the performance of a client/server application in a Washington, D.C., office. "We were way ahead of the game in identifying what that additional bandwidth was being used for and were on the phone getting them to curtail that activity before customers were on the phone telling us their application wasn't working anymore," Gross says. Tavve's product, dubbed tsc/PRM, works with Hewlett-Packard's OpenView or Tivoli's NetView for AIX, feeding off SNMP data those systems collect to create Web pages that graphically show network performance. "And it's up-to-the-second current," says Anthony Edwards, founder and chief technology officer for Tavve. Users can set thresholds and be warned when a device is within 30, 60

or any other number of days reaching the threshold. For example, maybe a router's CPU is operating at 60% of capacity half the time, when the threshold is 70% half the time. The Tavve product could determine that if CPU utilization continues to increase at the same rate, the threshold will be reached in 30 days, giving the user time to troubleshoot the problem. There's also a report that lists seemingly minor events that are happening repeatedly, an indication that a problem exists. And a service-level agreement facility alerts net managers well ahead of time if they're in danger of not meeting an SLA. "We're using the reports to try to be proactive with our network and look at trends," says Mark Jones, enterprise management systems analyst III at BB&T, a bank based in Winston-Salem, N.C., that has about 600 branches. Besides the bandwidth utilization reports, Jones notes that tsc/PRM alerts him to the top 10 consumers of bandwidth on the network, which helps in troubleshooting. Tavve users invariably point to the company's correlation engine, tsc/EventWatch, as the crown jewel of Tavve's product lineup. While a correlation engine would not seem to be proactive in nature - it sorts through alerts to identify the source of an outage - users say the Tavve product is so good that it can sometimes help them repair the fault before end users are aware there's an outage. And it definitely reduces the time it takes to fix a problem, users say (see story, this page). Model of successNetwork modeling tools are more proactive still, alerting you to potential problems before you go live with changes to your net. Robert Rohlin, senior consultant with Modis Solutions, a consulting company in Dallas, has been using MIL 3's ERP Network Guru for SAP R/3 to model an SAP installation for a petrochemical company client that has a 6,000-user network. Each of the company's 27 sites will be running SAP and many of them are overseas, compounding the response time issue. Rohlin already had baseline performance data from Concord tools that he could plug in to the MIL 3 product. To that, he added the expected SAP traffic load. "The thing we really like about MIL 3 is that we can get real specific, saying how much memory each router has, how much bandwidth and what protocols it's running," he says. You can also define heavy vs. light users, the specific SAP modules employed and various other characteristics. Given all those variables, he says it takes time to build the initial model, but once that's done it's easy to create multiple scenarios to find the one that yields optimal performance. The modeling tool also points out potential problems that would be easy to miss. For example, if you double bandwidth from one site to a particular application server, it could slow response time for all others using that server because now there is more competition for the same resources. There are two general ways to conduct network modeling, according to March Cohen, CEO and chairman of MIL 3. The first is analytical, where the modeling tool uses mathematical equations derived to approximate protocol behavior and delays. The other is discreet, which involves modeling actual, individual packet transactions, including how packets are delayed at different points in the network and the effect of any protocols involved. "The discreet model is almost a replication of what's happening in reality," Cohen says. With any modeling tool, it's crucial to verify your results before diving in too deep. Cohen says you should start by getting baseline performance data for a given application using existing monitoring tools. Then model that same application and compare the results. As you make changes, again compare the results from the monitoring tools with what the modeling tool predicted. That's essentially what Rohlin did to verify that MIL 3's tool was giving him accurate SAP modeling data. SAP was already installed at some sites in Europe, and the company was collecting monitoring data. He diagrammed a small site in Germany using the ERP Network Guru, ran some simulations and matched it up to the real-world performance data. "The results were amazingly close," he says. Neural nirvanaNeural network technology, and potentially other forms of predictive logic, may likewise one day prove to have some fairly amazing predictive capabilities. Frank Dzubeck, president of Communications Network Architects, a consultancy in Washington, D.C., says neural logic is one of three types of logic that may come into play to yield more proactive network management systems. The other two are chaos logic, which determines patterns when none are evident, and genetic logic, which detects patterns in hierarchical structures, from one generation to the next. Neural technology is furthest along at this point, with Computer Associates already delivering the technology for NT systems. Dzubeck says

IBM is working on neural agents of its own. IBM says it doesn't use the term neural, but Tivoli's Distributed Monitoring technology is based on the same principles. Sorrel Jakins, director of server systems at Brigham Young University in Provo, Utah, has been testing CA's NT-based Neugents since last fall. "We have about 30 to 35 NT servers and it's working very well on those." Typical statistical inference engines make predictions of future failures based on a large spread of existing data. Neugents don't require this existing knowledge base; rather, they continuously monitor a system or device and determine the complex patterns that indicate abnormal behavior. "Neugents are pretty good at taking skewed data and still making a good prediction," Jakins says. Ron Cass, divisional assistant vice president for Neugent research and development at CA, says Neugents train themselves to recognize patterns on an individual system or device by monitoring various parameters. On a router, for example, Neugents will monitor for excessive protocol traffic, header errors, IP address errors, fragment failure, discarding of good traffic - about 20 attributes in all. Rather than working from a **database** of information about the same **type** of router, Neugents start fresh with each router they monitor, Cass says. "Every router is different. The amount of traffic a router responds to depends on where it is." From the data they gather, Neugents learn what patterns of behavior lead to problems, including performance degradation, failed interfaces or whatever you program the Neugent to look for. Thresholds are set automatically, based on what the Neugent determines is normal behavior for the router, and they change every night to keep up with varying conditions. When a Neugent detects a pattern of behavior that led to a problem in the past, and if it's serious enough to trigger the threshold, the Neugent issues an alert detailing the impending problem. Neugents live on CA's NetworkIT Pro management console and **require** no **software** on the **device** to be monitored other than standard MIB 2 and Remote Monitoring agents. Each Neugent can monitor between 10 and 50 devices, depending on their complexity, but there's no limit to the number of Neugents you can install. Jakins says BYU has seen occasions where a Neugent says network traffic is increasing such that a server will have a problem in 15 minutes. "We've had our network people take corrective measures, but we've also sat back and watched to see what happened," he says. "The timing has been pretty accurate, and the predicted effects have been accurate, too." Asked if he sees the Neugent technology translating to a network scenario, where it can make the same sorts of predictions for routers and switches, Jakins answers with a thoroughly optimistic "most definitely." Desmond, a former Network World editor, is now vice president of King Content, a strategic publishing company in Southborough, Mass. He can be reached at paul\_desmond@king-content.com

27/3,K/1 (Item 1 from file: 621)  
DIALOG(R)File 621:Gale Group New Prod.Annou.(R)  
(c) 2002 The Gale Group. All rts. reserv.

01432083 Supplier Number: 46742781 (USE FORMAT 7 FOR FULLTEXT)  
**Sybase's SQL Server 11 and Replication Server Available on Data General's  
AViiON Platform**  
PR Newswire, pN/A  
Sept 26, 1996  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 872

(USE FORMAT 7 FOR FULLTEXT)

TEXT:

...SQL Server 11 database achieved the best Transaction Processing Council Benchmark (TPC-C) performance per CPU. The AV 4900, running Data General's DG/UX operating system and configured with 236 GB of CLARiON disk storage, was measured at 3809.7 order entry transactions per minute (tpmC). The benchmark, which was run in a client / server configuration, also showed that the five year cost of ownership for the user would be \$129...

...competitive advantage," said David Hsieh, vice president of product marketing for Sybase's Enterprise Business Group. "SQL Server and Replication Server, along with Data General's AViiON systems, provide enterprises with superior performance and scalability for...

27/3,K/2 (Item 2 from file: 621)  
DIALOG(R)File 621:Gale Group New Prod.Annou.(R)  
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01341333 Supplier Number: 46103866 (USE FORMAT 7 FOR FULLTEXT)  
**AMD DRIVES BATTERY-POWERED SYSTEMS WITH NEW 2.7 VOLT T-ONLY FLASH FAMILY**  
News Release, pN/A  
Jan 30, 1996  
Language: English Record Type: Fulltext  
Document Type: Magazine/Journal; Trade  
Word Count: 958

(USE FORMAT 7 FOR FULLTEXT)

TEXT:

...positioning systems. Future applications include digital cameras, hand-held digital voice recorders and pagers. These applications require 2.7 Volt single powersupply Flash devices to support extended life operation of alkaline and rechargeable batteries Am29LV800 Overview AMD's single...

...These devices also operate over the extended temperature range, which is critical in many portable applications. Low Power Consumption The Am29LVxxx family is designed for low power consumption in read, program and erase modes. In these active...

...than 1 uA of current. The device will "wake-up" with the standard read access time when it sees bus activity. High Performance The read access time of the Am29LV800 device is as fast as 100 nanoseconds, allowing operation of high-speed microprocessors with zero wait states. The highperformance Am29LVxxx family offers program and erase performance comparable to 5.0 Volt-only and 12.0 Volt Flash devices...

27/3,K/3 (Item 1 from file: 148)  
DIALOG(R)File 148:Gale Group Trade & Industry DB  
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08124425 SUPPLIER NUMBER: 17389671 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Plastics technology: manufacturing handbook & buyers' guide 1995/96. (Buyers Guide)**

August, 1995

DOCUMENT TYPE: Buyers Guide

ISSN: 0032-1257

LANGUAGE: English

RECORD TYPE: Fulltext

WORD COUNT: 174436

LINE COUNT: 15187

... plates.

WARREN ELECTRIC CORP.

Flanged, screw plug, circulation and over-the-side heaters for new **applications** and replacement **needs**. Flanges in steel or stainless steel with ratings from 150 to 1200 psi. Screw plugs...

...on all other points. Plastic housing with watertight membrane switch. Optional accessories include four different **types** of probes: universal, surface, air-gas, and hypodermic.

Model DT-156 thermometer has a range...circuitry, CompuStep start-up, manual and closed-loop control, and power on/off switch. With **microprocessor** PID control and complete diagnostics, module operates automatically after setting temperature and turning on power...in design; autotune PID; RS232C, RS422, and RS485 serial communications; universal programmable inputs; remote and **second** setpoints; dual-programmable alarms; and heat/cool control mode.

AutoProbes I and II traveling melt...digit, 14-mm display; and Model 200 a 3-digit, 20-mm display. Four operational **software** levels accessible only by entry codes.

GENERAL EASTERN INSTRUMENTS

For monitoring liquid temperature, TT-I...

27/3,K/4 (Item 1 from file: 674)

DIALOG(R)File 674:Computer News Fulltext

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090496

**Smartcard review how we did it**

Journal: Network World Page Number: 51

Publication Date: January 15, 2001

Word Count: 428 Line Count: 39

Text:

... process was repeated with the Dell server in a single-processor configuration and a four- **processor** configuration. Intel Pro100+ NICs were **used** because they are the most pervasive models of NIC in the server market. Twelve clients were used to create a workload for the **server configuration** under test. Six of the **clients** are four-processor machines with RAM amounts ranging from 512M to 2048M bytes. The remaining ...

... read/write file test does random simultaneous reads and writes from the server. The MSSQL **database** test invokes two **types** of SQL statements to an instance of MSSQL 7.0 Enterprise running on the Dell server. One statement is very CPU intensive, generating a few **transactions per second**, and the other statement has minimal impact on **CPU utilization**, generating large numbers of **transactions per second**. In each test, the number of virtual users is increased to obtain a performance curve...

... invoked when there is a low number of virtual users to get a comparison of **CPU utilization** between the two NIC manufacturers for one- and four-CPU server configurations.

27/3,K/5 (Item 2 from file: 674)

DIALOG(R)File 674:Computer News Fulltext

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077787

**Network fire prevention**

You'll need a tool kit that includes performance monitoring gear,

application modeling tools and, soon, neural network software.

Byline: PAUL DESMOND

Journal: Network World Page Number: 49

Publication Date: September 20, 1999

Word Count: 2108 Line Count: 192

Text:

... problems, but at least it will point you to where trouble spots are developing in **time** for you to take corrective **actions**. There are dozens of performance monitoring tools available - from vendors including Concord Communications, FirstSense, Ganymede...

...any other number of days of reaching the threshold. For example, maybe a router's **CPU** is **operating** at 60% of capacity half the time, when the threshold is 70% half the time. The Tavve product could determine that if **CPU utilization** continues to increase at the same rate, the threshold will be reached in 30 days...failure, discarding of good traffic - about 20 attributes in all. Rather than working from a **database** of information about the same **type** of router, Neugents start fresh with each router they monitor, Cass says. "Every router is... alert detailing the impending problem. Neugents live on CA's NetworkIT Pro management console and **require** no **software** on the **device** to be monitored other than standard MIB 2 and Remote Monitoring agents. Each Neugent can...

27/3,K/6 (Item 3 from file: 674)

DIALOG(R) File 674:Computer News Fulltext

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075421

**Reining in the road warrior**

**Connect:Manage, Orbiter and Mobile Automation all do a good job of managing mobile users.**

Byline: Steven Goldberg

Journal: Network World Page Number: 65

Publication Date: June 21, 1999

Word Count: 2260 Line Count: 220

Text:

... job or activity distribution approaches of Orbiter and Mobile Automation. Connect:Manage supports four different **types** of channels: **software** distribution, session manager, document management and transmitter. The transmitter channel provides a means of broadcasting...

... on the administration console. Jobs come in four basic flavors: inventory, change analysis, maintenance and **software** distribution. Creating inventory and maintenance jobs **requires** little input. For inventory jobs - **hardware** and **software** - select target machines and determine the schedule or frequency with which the job should run...

... Desktop Management Interface-compliant, it produces a good amount of detail about each system, including **operating** system version, service packs, **processor**, total memory and hard disk space. Software distribution jobs are also simple to create. Orbiter...

... synchronize the contents of a source folder. You can create a recurring schedule when the **job** is created. Each **time** the **job** runs, it checks the original source directory for updated files. This process helps keep data... these devices and easily deploy them the next time the devices synchronize with their host **PCs**. **Server** installation Installing and **configuring** Connect:Manage's console is simple. You only need to install a service that Connect...

... an e-mail administration account. Mobile Automation includes good documentation and context-sensitive online help. **Client** installation Once you **configure** the **server software**, the next step is to create a setup package to deploy to client systems. Connect...

... 8.5M-byte installation, which is practically speaking too big to send

over a modem, **requires** someone on the **client** PC to input the **server** name and transport **type**. The parameters are too technical to trust to end users, so an IT visit is...

27/3,K/7 (Item 4 from file: 674)  
DIALOG(R)File 674:Computer News Fulltext  
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070772

#### Web site sentinels

These three Web management tools have different styles, but one proves best at keeping your site running smoothly: WebTrends' Enterprise Suite 3.0.

Byline: Thomas Powell  
Journal: Network World Page Number: 55  
Publication Date: December 07, 1998  
Word Count: 2166 Line Count: 199

#### Text:

... results of processed logs. Other interesting log analysis features include support for clusters and proxy **server** logs, filters to **sort** out multiple domains served from a single machine, Open Database Connectivity support for access to...

... mail. You can also watch basic system services such as disk space availability, memory **use** and CPU **utilization**; and you can request that warnings be issued when thresholds are reached. Additionally, SiteScope monitors...

... HTML! - and Java-based browser interface, you'll discover a wealth of useful tools. WebChallenger **requires** an NT 4.0 **workstation** or **server** with 32M bytes of RAM and more than 100M bytes of free disk space. WebChallenger does not run on the same **machine** as the Web **server** and does not **require** a remote component on monitored servers. Even! so, it provides sophisticated network and server monitoring...

... URLs per test cycle. After benchmarking a server, WebChallenger produces a report that includes **transactions** per **minute**, as well as throughput and response time in milliseconds. While more complex Web server load near real time on a **variety** of **servers**. Finally, Web Verify provides basic site link checking and some quality assurance measures, such as...

27/3,K/8 (Item 5 from file: 674)  
DIALOG(R)File 674:Computer News Fulltext  
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050282

#### SMP or bust LAN World

Will this be the technology to take Novell to new success?

Byline: Ram Tackett  
Journal: Network World Page Number: 27  
Publication Date: March 04, 1996  
Word Count: 1143 Line Count: 107

#### Text:

... system will carry the company beyond the file and print domains. One certainty is that **client** / **server** processing **requires** a more robust, scalable architecture than is provided by traditional network operating systems (NOS...

... platforms, NetWare SMP attempts to do away with CPU bottlenecks by allowing multithreaded applications to **run** over more than one **processor** at a time. This lets servers accomplish more work in less **time**. Novell revamped some core server **processes** to enable multithreading in NetWare SMP. It has added performance and scalability enhancements to the...

...sec on the base NetWare . Processing power Theoretical NetWare SMP is designed to **run** on as many as 64 **processors** . However, SMP implementations vary among system vendors - Novell for the first time in its history...company still faces three major stumbling blocks. First, many users simply don't need the **kind** of horsepower SMP offers. Most **servers** still provide file and print services, neither of which are CPU-intensive. Second, SMP-based **operating** systems and the **applications** that **require** them are immature. Last, **hardware** vendors still cannot provide performance boosts in proportion to the number of processors. Remember, throwing...

27/3,K/9 (Item 6 from file: 674)  
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044307

**DATA DELIVERY**

**Buyers's Guide**

**DBMS** vendors boost power at high end, work on slimmed-down products for low end, and deliver on mid-range promises for replication and new data types.

Byline: Colin White

Journal: Network World Page Number: 39

Publication Date: May 15, 1995

Word Count: 2763 Line Count: 258

**Text:**

... work with copies of shared data, improving performance and data availability. Support for new data **types** makes it possible for **DBMS servers** to store complex images, text, maps, audio and video, along with simple numbers and character strings, on servers across the enterprise. The three variables that factor heaviest in the **DBMS server** selection equation are the **type** of data and **applications** used, as well as the required performance. There are some simple guidelines to follow to see which **type** of specialized **DBMS server** you should examine. Products that are fit for enterprise environments support more than 100 users...  
...support as many as 20 users and databases of up to 1G byte per single **CPU** server. Workgroup **DBMS** servers **run** applications that enable users to share common data. The emerging set of so-called personal...

... the operating system and the machine hardware. To exploit the power of SMP or MPP **machines** , a **DBMS server** **needs** to support parallel query processing or parallel transaction processing. Parallel query processing is beneficial for...

... performance of OLTP applications. The objective of parallel processing in decision support is to improve **query** response **time** . With parallel **query** processing, each **query** is decomposed by the **DBMS** server into a series of tasks, and each task is...While MPP offers continued performance enhancement for parallel transaction processing, it comes at a price. Each **processor** has to **run** its own copy of the **DBMS** and employ a distributed lock manager to maintain data...

... is to use application middleware, such as remote procedure calls or message-oriented middleware. This **type** of middleware provides more **application** flexibility for handling processing across multiple servers and has the benefit of being **DBMS** vendor... development of complex multimedia applications, there is now a need to let users define data **types** and functions themselves so **applications** can better manipulate stored information. One of the first products to support a user-definable  
...

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File 34:SciSearch(R) Cited Ref Sci 1990-2002/Apr W4  
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Set	Items	Description
S1	3344	(SIZING OR SIZE OR SIZES) (5N) (SERVER? ? OR WEBSERVER? ? OR DATABASE? ? OR DBMS OR RDBMS)
S2	33175	(REQUIR? OR NEEDS OR NECESS? OR DEMAND? ? OR CONFIGUR?) (3N- ) (SERVER? OR WEBSERVER? OR APPLICATION? OR PROGRAM? ? OR SOFTWARE OR DATABASE? OR DBMS OR RDBMS) (3N) (HARDWARE OR CLIENT? ? OR PC? ? OR COMPUTER? ? OR WORKSTATION? ?)
S3	10486	(REQUIR? OR NEEDS OR NECESS? OR DEMAND? ? OR CONFIGUR?) (3N- ) (SERVER? OR WEBSERVER? OR APPLICATION? OR PROGRAM? ? OR SOFTWARE OR DATABASE? OR DBMS OR RDBMS) (3N) (TERMINAL? ? OR DEVICE? ? OR EQUIPMENT OR MACHINE? ? OR OPERATING)
S4	170950	(WORKLOAD? ? OR WORK()LOAD? ? OR PROCESSING OR PERFORMANCE OR CAPACITY) (5N) (REQUIR??? OR REQUIREMENT? ? OR NEEDS OR NECESSARY OR NECESSIT???? OR DEMAND? ?)
S5	255906	(TYPE? ? OR KIND? ? OR SORT? ? OR FAMILY OR CATEGORY OR CLASS OR BRAND? ? OR VARIET??? OR GROUP? ?) (5N) (SERVER? ? OR WEBSERVER? ? OR APPLICATION? ? OR PROGRAM? ? OR SOFTWARE? ? OR DATABASE? ? OR DBMS OR RDBMS)
S6	84297	(PROCESSOR? OR MICROPROCESSOR? OR PROCESSING()UNIT OR CPU -

OR MPU) (5N) (UTILIZ? OR UTILIS? OR USE? ? OR ACT? OR BUSY OR  
WORKING OR OPERAT??? OR OPERATION? ? OR FUNCTION? ? OR FUNCTI-  
ONING OR RUN???? OR ACTIVE OR ACTIVIT???)

S7 4162 (PROCESSOR? OR MICROPROCESSOR? OR PROCESSING() UNIT OR CPU -  
OR MPU) (5N) (IDLE? ? OR IDLING OR INACTIV? OR INOPERA? OR REST?  
OR WAIT? OR LATENC??? OR LATENT)

S8 308510 (TRANSACTION? ? OR ACTIVIT??? OR PROCESSES OR ACTION? ? OR  
EVENT? ? OR JOB? ? OR TASK? ? OR REQUEST? ? OR QUERY OR QUERI-  
ES) (5N) (RATE OR SPEED OR TIME OR SECOND? ? OR MINUTE? ?) OR T-  
PS

S9 4449 CAPACITY() PLANNING

S10 8 (S1:S4 OR S9) AND S5 AND S6:S7 AND S8

S11 5 RD (unique items)

S12 12236 (S1:S4 OR S9) AND (S5:S8)

S13 91 SIZING(3N) (SERVER? ? OR WEBSERVER? ? OR DATABASE? ? OR DBMS  
OR RDBMS)

S14 2252 (WORKLOAD? ? OR WORK() LOAD? ?) (5N) (REQUIR??? OR REQUIREMEN-  
T? ? OR NEEDS OR NECESSARY OR NECESSIT???? OR DEMAND? ?)

S15 267 S13:S14 AND S5:S8

S16 245364 (REQUIR??? OR REQUIREMENT? ? OR NEEDS OR NECESSARY OR NECE-  
SSIT???? OR DEMAND? ?) (5N) (SERVER? ? OR WEBSERVER? ? OR APPLI-  
CATION? ? OR PROGRAM? ? OR SOFTWARE? ? OR DATABASE? ? OR DBMS  
OR RDBMS)

S17 549700 (REQUIR??? OR REQUIREMENT? ? OR NEEDS OR NECESSARY OR NECE-  
SSIT???? OR DEMAND? ?) (5N) (HARDWARE OR CLIENT? ? OR PC? ? OR -  
COMPUTER? ? OR SYSTEM? ? OR WORKSTATION? ? OR TERMINAL? ? OR -  
DEVICE? ? OR EQUIPMENT OR MACHINE? ? OR OPERATING)

S18 89 S15 AND S16:S17

S19 70 RD (unique items)

S20 63 S19 NOT PY=2001:2002

11/5/1 (Item 1 from file 8)  
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05847082 E.I. No: EIP01276566279

**Title: Thread-level parallelism and interactive performance of desktop applications**

Author: Flautner, K.; Uhlig, R.; Reinhardt, S.; Mudge, T.

Corporate Source: University of Michigan, Ann Arbor, MI 48109-2122, United States

Conference Title: 9th International Conference Architectural Support for Programming Languages and Operating Systems (ASPLOS-IX)

Conference Location: Cambridge, MA, United States Conference Date: 20001112-20001115

Sponsor: HP; COMPAQ; SUN

E.I. Conference No.: 58193

Source: International Conference on Architectural Support for Programming Languages and Operating Systems - ASPLOS 2000. p 129-138

Publication Year: 2000

CODEN: 85MCAT

Language: English

Document Type: CA; (Conference Article) Treatment: A; (Applications); T; (Theoretical)

Journal Announcement: 0107W1

Abstract: Multiprocessing is already prevalent in servers where multiple clients present an obvious source of thread-level parallelism. However, the case for multiprocessing is less clear for desktop applications. Nevertheless, architects are designing processors that count on the availability of thread-level parallelism. Unlike server **workloads**, the primary **requirement** of interactive applications is to respond to user events under human perception bounds rather than to maximize end-to-end throughput. In this paper we report on the thread-level parallelism and interactive response time of a **variety** of desktop **applications**. By tracking the communication between tasks, we can focus our measurements on the portions of the benchmark's execution that have the greatest impact on the user. We find that **running** our benchmarks on a dual- **processor** machine improves response **time** of mouse-click **events** by as much as 36%, and 22% on average - out of a maximum possible 50%. The benefits of multiprocessing are even more apparent when background tasks are considered. In our experiments, running a simple MP3 playback program in the background increases response time by 14% on a uniprocessor while it only increases the response time on a dual processor by 4%. When response times are fast enough for further improvements to be imperceptible, the increased idle time after interactive episodes could be exploited to build systems that are more power efficient. 18 Refs.

Descriptors: \*Multiprocessing systems; Client server computer systems; Personal computers; Interactive computer systems; Response time (computer systems); Sensory perception; Throughput; Mice (computer peripherals); Servers

Identifiers: Thread-level parallelism

Classification Codes:

722.4 (Digital Computers & Systems); 461.4 (Human Engineering); 912.2 (Management); 722.2 (Computer Peripheral Equipment)

722 (Computer Hardware); 461 (Bioengineering); 912 (Industrial Engineering & Management)

72 (COMPUTERS & DATA PROCESSING); 46 (BIOENGINEERING); 91 (ENGINEERING MANAGEMENT)

11/5/2 (Item 1 from file: 202)  
DIALOG(R) File 202: Information Science Abs.  
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2801752

**Database sort and merge apparatus with multiple memory arrays having alternating access.**

Author(s): Baum, R I; Brent, G.A.; Gibson, D.H.

Patent Number(s): US 5210870

Publication Date: May 11, 1990  
Language: English  
Document Type: Patent  
Record Type: Abstract  
Journal Announcement: 2800

A **processor functioning** as a coprocessor attached to a central processing complex provides efficient execution of the functions **required** for database **processing**: sorting, merging, joining, searching and manipulating fields in a host memory system. The specialized functional units: a memory interface and field extractor/assembler, a Predicate Evaluator, a combined sort/merge/join unit, a hasher, and a microcoded control processor, are all centered around a partitioned Working Store. Each functional unit is pipelined and optimized according to the function it performs, and executes its portion of the query efficiently. All functional units execute simultaneously under the control processor to achieve the desired results. Many different database functions can be performed by chaining simple **operations** together. The **processor** can effectively replace the **CPU** bound portions of complex database **operations** with functions that run at the maximum memory access **rate** improving performance on complex **queries**.

Descriptors: Access; Array processors; Databases; Host computers  
Classification Codes and Description: 6.02 (Bibliographic Search Services, Databases); 5.00 (General Aspects)  
Main Heading: Information Systems and Applications; Information Processing and Control

11/5/3 (Item 1 from file: 2)  
DIALOG(R) File 2:INSPEC  
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5358439 INSPEC Abstract Number: B9610-6220F-003, C9610-7120-012

**Title: Voice applications in a multimedia financial information terminal**  
Author(s): Gaudette, M.  
Author Affiliation: DSP Software Eng. Inc., Bedford, MA, USA  
Conference Title: Proceedings of the 5th International Conference on Signal Processing Applications and Technology Part vol.2 p.1194-9 vol.2  
Publisher: DSP Associates, Waltham, MA, USA  
Publication Date: 1994 Country of Publication: USA 2 vol. 1754 pp.  
Material Identity Number: XX96-01953  
Conference Title: Proceedings of 5th International Conference on Signal Processing Applications and Technology  
Conference Date: 18-21 Oct. 1994 Conference Location: Dallas, TX, USA  
Language: English Document Type: Conference Paper (PA)  
Treatment: Practical (P)

Abstract: While many companies are struggling with what is meant by the term multimedia, Bloomberg Financial Markets is taking advantage of the technologies that are currently available to expand the type and form of data they provide to users of their financial news terminals. The Bloomberg terminal is primarily used by professionals involved in the various financial markets. Using current digital signal processing techniques, the audio portion of news stories created for radio and television broadcast are compressed at several different digital bit rates. The compressed versions of the stories are archived and cataloged for ready reference by terminal users. The two major applications are an audio **processing** /compression station and on-**demand** decompression of cataloged audio only or audio/video/data integrated stories. The audio processing and compression is accomplished at the same time as the associated broadcast related processing. This is done to ensure the integrity of the data and to eliminate the need for extra steps in the production/cataloging process. Decompression occurs in real-**time**, whenever a terminal user **requests** a story. The speech portion of the story is synthesized at the terminal as it is downloaded. The focus of this presentation is on the implementation of the audio component of this multimedia data network. An overview of the system as a whole will be presented, followed by a more detailed

description of the processing of audio data. The major part of the system involve sample rate conversion and voice coding at three different digital rates. While the main focus will be on the DSP specific portions of the system, the data processing techniques used to manage the problem of accessing multiple forms of the same data will also be discussed. The **applications** described run on a **variety** of host platforms with all DSP **functions** implemented on Texas Instruments TMS320C3x **processors**. (0 Refs)

Subfile: B C

Descriptors: audio coding; data communication; data compression; digital signal processing chips; financial data processing; multimedia communication; multimedia computing; telecommunication terminals; voice communication

Identifiers: voice applications; multimedia financial information terminal; Bloomberg Financial Markets; financial market data; audio processing/compression station; on-demand decompression; terminal user; multimedia stories; audio playback; multimedia data network; sample rate conversion; voice coding; host platforms; DSP functions; Texas Instruments TMS320C3x processors

Class Codes: B6220F (ISDN and multimedia terminal equipment); B6210R (Multimedia communications); B1265F (Microprocessors and microcomputers); C7120 (Financial computing); C6130M (Multimedia); C5135 (Digital signal processing chips)

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11/5/4 (Item 1 from file: 6)

DIALOG(R)File 6:NTIS

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0624008 NTIS Accession Number: AD-489 577/7/XAB

**Stage 64: Output Processor Programming Specifications Manual. Volume II. Tally Programs**

(Technical rept)

Plengey, W. D.

Technical Operations Inc Washington D C

Corp. Source Codes: 343050

Report No.: TR-65-8-4-VOL-2

Mar 65 430p

Journal Announcement: GRAI7713

See also Volume 1, AD-489 518L. Supersedes Rept. no. TR-63-3.

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NTIS Prices: PC A19/MF A01

Contract No.: AF 49(638)-1179

The volume contains a detailed description of the tally and summary programs used in the STAGE 64 Output **Processor** Programming specification. The Output Processor is a system of **programs** that **sort**, summarize, and convert into printable form, the raw history outputs produced by the STAGE Simulator. The programs described tally and summarize the sortie history outputs. Tallies, for example, are made up of the number of planes killed, the number of bases damaged or killed, the number of radar sites destroyed. These tallies are grouped in categories such as the **time** period in which the **event** occurred, type of offensive or defensive system involved, attacking wave, etc. Summaries condense the histories of surface-to-surface missile operations and of individual sorties. Included is a brief summary of what happened to each weapon that was on board the sortie at takeoff time. (Author)

Descriptors: War games; \*Aerial warfare; Computer programming; Scheduling; Input output devices; Operations research; Strategic warfare; Nuclear warfare; Digital computers; Simulation; Simulators; Data **processing**; Flow charting; Military **requirements**; Attrition; Tanker planes; Jet bombers; Damage; Damage assessment; Radar stations; Surface to surface missiles; Instruction manuals; Specifications; Kill probabilities

Identifiers: Missions; Stage; NTISDODXD

Section Headings: 74G (Military Sciences--Military Operations, Strategy,

and Tactics); 62A (Computers, Control, and Information Theory--Computer Hardware)

11/5/5 (Item 1 from file: 34)  
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci  
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09166689 Genuine Article#: 374PG Number of References: 39  
**Title: Parametric design synthesis of distributed embedded systems**  
Author(s): Kang DI (REPRINT) ; Gerber R; Saksena M  
Corporate Source: USC, ISI, 4350 N FAIRFAX DR, SUITE 770/ARLINGTON//VA/22203  
(REPRINT); UNIV MARYLAND, INST ADV COMP STUDIES, DEPT COMP SCI/COLLEGE  
PK//MD/20742; TIMESYS CORP, /PITTSBURGH//PA/15213  
Journal: IEEE TRANSACTIONS ON COMPUTERS, 2000, V49, N11 (NOV), P1155-1169  
ISSN: 0018-9340 Publication date: 20001100  
Publisher: IEEE COMPUTER SOC, 10662 LOS VAQUEROS CIRCLE, PO BOX 3014, LOS  
ALAMITOS, CA 90720-1314

Language: English Document Type: ARTICLE

Geographic Location: USA

Subfile: CC ENGI--Current Contents, Engineering, Computing & Technology

Journal Subject Category: ENGINEERING, ELECTRICAL & ELECTRONIC; COMPUTER  
SCIENCE, HARDWARE & ARCHITECTURE

**Abstract:** This paper presents a design synthesis method for distributed embedded systems. In such systems, computations can flow through long pipelines of interacting **software** components, hosted on a **variety** of resources, each of which is managed by a local scheduler. Our method automatically calibrates the local resource schedulers to achieve the system's global end-to-end **performance requirements**. A system is modeled as a set of distributed task chains (or pipelines), where each task represents an **activity** requiring nonzero load from some **CPU** or network resource. Task load requirements can vary stochastically due to second-order effects like cache memory behavior, DMA interference, pipeline stalls, bus arbitration delays, transient head-of-line blocking, etc. We aggregate these effects-along with a task's per-service load demand-and model them via a single random variable, ranging over an arbitrary discrete probability distribution. Load models can be obtained via profiling tasks in isolation or simply by using an engineer's hypothesis about the system's projected behavior. The end-to-end **performance requirements** are posited in terms of throughput and delay constraints. Specifically, a pipeline's delay constraint is an upper bound on the total latency a computation can accumulate, from input to output. The corresponding throughput constraint mandates the pipeline's minimum acceptable output rate-counting only outputs which meet their delay constraints. Since per-component loads can be generally distributed, and since resources host stages from multiple pipelines, meeting all of the system's end-to-end constraints is a nontrivial problem. Our approach involves solving two subproblems in tandem: 1) finding an optimal proportion of load to allocate to each task and channel and 2) deriving the best combination of service intervals over which all load proportions can be guaranteed. The design algorithms use analytic approximations to quickly estimate output rates and propagation delays for candidate solutions. When all parameters are synthesized, the estimated end-to-end performance metrics are rechecked by simulation. The per-component load reservations can then be increased, with the synthesis algorithms rerun to improve performance. At that point, the system can be configured according to the synthesized scheduling parameters-and then revalidated via on-line profiling. In this paper, we demonstrate our technique on an example system, and compare the estimated performance to its simulated on-line behavior.

**Descriptors--Author Keywords:** design synthesis ; embedded systems ;  
distributed systems ; soft real-time ; statistical performance

**Identifiers--KeyWord Plus(R):** REAL- **TIME** **TASKS**

**Cited References:**

BURNS A, 1994, PRINCIPLES REAL TIME  
CRUZ RL, 1991, V37, P114, IEEE T INFORM THEORY  
DEMERS A, 1989, P1, P ACM SIGCOMM SEPT

20/5/7 (Item 5 from file 8)  
DIALOG(R)File 8: Ei Compendex(R)  
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03051708 E.I. Monthly No: EIM9104-015625

**Title: Task Analysis/Workload (TAWL). A methodology for predicting operator workload.**

Author: Hamilton, David B.; Bierbaum, Carl R.

Corporate Source: Anacapa Sciences, Inc, AL, USA

Conference Title: Proceedings of the Human Factors Society 34th Annual Meeting - Orlando '90

Conference Location: Orlando, FL, USA Conference Date: 19901008

Sponsor: Cent Florida Chapter

E.I. Conference No.: 13987

Source: Proceedings of the Human Factors Society. Publ by Human Factors Soc Inc, Santa Monica, CA, USA. p 1117-1121

Publication Year: 1990

CODEN: PHFSDQ ISSN: 0163-5182

Language: English

Document Type: PA; (Conference Paper) Treatment: T; (Theoretical)

Journal Announcement: 9104

Abstract: The Task Analysis/Workload (TAWL) methodology was developed to predict operator workload using the information from a task analysis of the system. In addition, the TAWL Operator Simulation System (TOSS) was developed to perform all the data base management and model execution functions needed to use the methodology. A TAWL workload prediction model is developed in three stages: task/workload analysis, model construction, and model execution. The methodology assumes that **demand** on human attention ( **workload** ) can be approximated by modeling the separate cognitive, psychomotor, and sensory requirements of all tasks being performed by the operator. The model produces half- **second time** lines annotated by **task** names and workload estimates. The output of the models can be graphed or read by statistical software for further evaluation. TAWL models are useful to system designers as aids in task allocation between crewmembers, machine and crewmembers, and workload components, as well as across time. In addition, the information generated by the models can be used to evaluate the **system** 's manning and training **requirements** . Currently, the Army is sponsoring the development of TAWL workload prediction models for modified versions of the AH-64A (Apache), CH-47 (Chinook), and UH-60A (Black Hawk) aircraft. (Author abstract) 12 Refs.

Descriptors: \*ERGONOMICS--\*Computer Applications; COMPUTER SOFTWARE--Performance; JOB ANALYSIS--Computer Aided Analysis; COMPUTER SIMULATION--Military Applications; HELICOPTERS, MILITARY--Personnel; SYSTEMS SCIENCE AND CYBERNETICS--Man Machine Systems

Identifiers: HELICOPTER CREW TASK ANALYSIS; OPERATOR WORKLOAD SIMULATION SOFTWARE; HELICOPTER CREW WORKLOAD PREDICTION; COMPUTER AIDED TASK ALLOCATION

Classification Codes:

461 (Biotechnology); 912 (Industrial Engineering & Management); 723

(Computer Software); 404 (Military Engineering); 652 (Aircraft)

46 (BIOENGINEERING); 91 (ENGINEERING MANAGEMENT); 72 (COMPUTERS & DATA PROCESSING); 40 (CIVIL ENGINEERING); 65 (AEROSPACE ENGINEERING)

20/5/8 (Item 6 from file: 8)  
DIALOG(R)File 8: Ei Compendex(R)  
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02090078 E.I. Monthly No: EIM8605-028505

**Title: ALGEBRAIC MODELS FOR CPU SIZING.**

Author: Orchard, Robert A.

Corporate Source: City Univ of New York, Dep of Computer Science, Staten Island, NY, USA

Conference Title: Proceedings of the Computer Performance Evaluation Users Group (CPEUG) 19th Meeting.

Conference Location: San Francisco, CA, USA Conference Date: 19831025

Sponsor: NBS, Inst of Computer Sciences & Technology, Washington, DC, USA

E.I. Conference No.: 04842

Source: National Bureau of Standards, Special Publication 00-104. Publ  
by NBS, Washington, DC, USA p 116-134

Publication Year: 1983

CODEN: XNBSAV ISSN: 0083-1883

Language: English

Document Type: PA; (Conference Paper)

Journal Announcement: 8605

Abstract: This paper describes a CPU sizing methodology developed for a corporate performance and configuration group. The objective was to predict **CPU utilization** and total workload turnaround time for future batch workloads. This was accomplished through the implementation of certain algebraic models which successfully model the various components (i. e. , CPU, I/O, etc. ) of a computer system, capturing the dynamic interrelationship of hardware configuration, operating system logic and application workload. The result of this work is an algorithm which will accurately forecast average **CPU utilization**, volume independent **CPU utilization**, initiator turnaround and workload turnaround time for a given workload on various CPU models (3031, 168-3, 168-3 MP, 3033, 3033 MP). From a planning viewpoint, this information is extremely important in determining **hardware needs** as **application workload** characteristics change. (Author abstract) 2 refs.

Descriptors: \*COMPUTER OPERATING SYSTEMS--\*Mathematical Models

Identifiers: ALGEBRAIC MODELS; CPU SIZING; FUTURE BATCH WORKLOADS; VOLUME INDEPENDENT **CPU UTILIZATION**; AVERAGE **CPU UTILIZATION**; TOTAL WORKLOAD TURNAROUND TIME

Classification Codes:

722 (Computer Hardware); 723 (Computer Software)

72 (COMPUTERS & DATA PROCESSING)

20/5/9 (Item 7 from file: 8)

DIALOG(R)File 8: Ei Compendex(R)

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02054194 E.I. Monthly No: EI8612129197 E.I. Yearly No: EI86119136

Title: **COMPUTER-ASSISTED HUMAN FACTORS WORKLOAD ANALYSIS SYSTEM.**

Author: Smith, Dana M.; Walker, Sherrill A.

Corporate Source: Boeing Military Airplane Co, Wichita, KS, USA

Source: Tech Pap Soc Manuf Eng 1985 Pap MM85-716, 11p

Publication Year: 1985

CODEN: SMEPBA

Language: ENGLISH

Document Type: UP; (Unpublished Paper or Preprint) Treatment: M;  
(Management Aspects)

Journal Announcement: 8612

Abstract: The purpose of workload analysis is to generate a graphic comprehensive flow of job-related behaviors in an operational setting so that task efficiency can be maximized. Conventional approaches to **task**-workload analysis are **time** consuming, cumbersome and of questionable accuracy. A new approach to workload analysis is needed which narrows the technological gap between traditional methods and modern **computer systems**. Automated operational **systems** require increased levels of data integration, visual monitoring and decision making. The conventional stopwatch/clipboard method is no longer the most efficient one for high technology environments. The **computer**-assisted **workload analysis system** requires the utilization of a handheld data entry and storage device capable of interfacing with a personal computer. A four-digit behavioral code records and stores data simultaneously for task-timelines analysis, individual behaviors, and multiple statistical analyses. (Author abstract) 10 refs.

Descriptors: SYSTEMS ANALYSIS; **JOB** ANALYSIS; STATISTICAL METHODS; **TIME** AND MOTION STUDY; SYSTEMS SCIENCE AND CYBERNETICS; HUMAN ENGINEERING

Identifiers: AUTOMATED OPERATIONAL SYSTEMS; WORK MEASUREMENT; ERGONOMICS; HUMAN RESOURCES

Classification Codes:

912 (Industrial Engineering & Management); 922 (Statistical Methods); 913 (Production Planning & Control)

91 (ENGINEERING MANAGEMENT); 92 (ENGINEERING MATHEMATICS)

20/5/11 (Item 9 from file: 8)  
DIALOG(R)File 8: Ei Compendex(R)  
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01230613 E.I. Monthly No: EIM8207-013741

**Title: TECHNIQUES FOR DETERMINING THE SIZE REQUIREMENTS OF DISPATCH AND COMMUNICATIONS SYSTEMS .**

Author: Emerson, Richard F.  
Corporate Source: JPL, Pasadena, Calif, USA  
Conference Title: Proceedings - 1981 Carnahan Conference on Crime Countermeasures

Conference Location: Lexington, Ky, USA Conference Date: 19810513  
Sponsor: Univ of Ky, Coll of Eng, Lexington, USA; IEEE Lexington Sect, Ky, USA; IEEE Aerosp and Electron Syst Soc, New York, NY, USA

E.I. Conference No.: 00227  
Source: University of Kentucky, Office of Engineering Services, (Bulletin) UKY BU 124. Publ by Univ of Ky, Coll of Eng, Lexington, USA. Also Available from IEEE Serv Cent (Cat n 81CH1661-8), Piscataway, NJ, USA p 55-64

Publication Year: 1981  
CODEN: UKOBDS ISBN: 0-89779-046-4  
Language: English  
Document Type: PA; (Conference Paper)  
Journal Announcement: 8207

Descriptors: \*RADIO COMMUNICATION  
Identifiers: DISPATCH SYSTEMS SIZE REQUIREMENTS ; COMMUNICATIONS SYSTEMS SIZE REQUIREMENTS ; SYSTEM WORKLOAD MEASUREMENT; DISPATCH CENTER ACTIVITIES; PEAK PERIOD AND DEMAND; MEASURING TASK MIX; MEASURING SERVICE TIME ; DETERMINING SYSTEM SIZE; PARAMETER EVALUATION; MAXIMUM THROUGHPUT

Classification Codes:  
716 (Radar, Radio & TV Electronic Equipment)  
71 (ELECTRONICS & COMMUNICATIONS)

20/5/14 (Item 12 from file: 8)  
DIALOG(R)File 8: Ei Compendex(R)  
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00366176 E.I. Monthly No: EI7405025241

**Title: ON THE CONSTRUCTION OF A REPRESENTATIVE SYNTHETIC WORKLOAD.**

Author: Sreenivasan, K.; Kleinman, A. J.  
Corporate Source: MITRE Corp  
Source: Communications of the ACM v 17 n 3 Mar 1974 p 127-133  
Publication Year: 1974  
CODEN: CACMA2 ISSN: 0001-0782  
Language: ENGLISH  
Journal Announcement: 7405

Abstract: A general method of constructing a drive workload representative of a real workload is described. The real workload is characterized by its demands on the various system resources. These characteristics of the real workload are obtained from the system accounting data. The characteristics of the drive workload are determined by matching the joint probability density of the real workload with that of the drive workload. The drive workload is realized by using a synthetic program in which the characteristics can be varied by varying the appropriate parameters. Calibration experiments are conducted to determine expressions relating the synthetic program parameters with the workload characteristics. The general method is applied to the case of two variables, cpu seconds and number of I/O activities ; and a synthetic workload with 88 jobs is constructed to represent a month's workload consisting of about 6000 jobs. 13 refs.

Descriptors: \*COMPUTER SYSTEMS, DIGITAL  
Identifiers: SYNTHETIC WORKLOAD  
Classification Codes:  
722 (Computer Hardware)

20/5/18 (Item 4 from file: 35)

DIALOG(R) File 35:Dissertation Abs Online

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01481973 ORDER NO: AADAA-I9604350

**TOOLS AND TECHNIQUES FOR MEMORY SYSTEM DESIGN AND ANALYSIS (SOFTWARE DESIGN, CACHE PROFILE, PROCESSORS)**

Author: LEBECK, ALVIN ROY

Degree: PH.D.

Year: 1995

Corporate Source/Institution: THE UNIVERSITY OF WISCONSIN - MADISON (0262)

Supervisor: DAVID A. WOOD

Source: VOLUME 57/01-B OF DISSERTATION ABSTRACTS INTERNATIONAL.

PAGE 461. 169 PAGES

Descriptors: COMPUTER SCIENCE

Descriptor Codes: 0984

As processor cycle times decrease, memory system performance becomes ever more critical to overall performance. Continually changing technology and workloads create a moving target for computer architects in their effort to design cost-effective memory **systems**. Meeting the **demands** of ever changing **workloads** and technology **requires** the following: (1) Efficient techniques for evaluating memory system performance, (2) Tuning programs to better use the memory system, and (3) New memory system designs. This thesis makes contributions in each of these areas.

Hardware and software developers rely on simulation to evaluate new ideas. In this thesis, I present a new interface for writing memory system simulators--the active memory abstraction--designed specifically for simulators that process memory references as the application executes and avoids storing them to tape or disk. Active memory allows simulators to optimize for the common case, e.g., cache hits, achieving simulation times only 2-6 times slower than the original uninstrumented application.

The efficiency of the active memory abstraction can be used by software designers to obtain information about their program's memory system behavior--called a cache profile. In this thesis, using the CProf cache profiling system, I show that cache profiling is an effective means of improving uniprocessor program performance by focusing a programmer's attention on problematic code sections and providing insight into the **type** of **program** transformation to apply. Execution time speedups for the programs studied range from 1.02 to 3.46, depending on the machine's memory system.

The third contribution of this thesis is dynamic self-invalidation (DSI), a new technique for reducing coherence overhead in shared-memory multiprocessors. The fundamental concept of DSI is for processors to automatically replace a block from their cache before another processor wants to access the block, allowing the directory to immediately respond with the data. My results show that, under sequential consistency DSI can reduce execution time by as much as 41% and under weak consistency by as much as 18%. Under weak consistency, DSI can also exploit tear-off blocks--which eliminate both invalidation and acknowledgment messages--for a total reduction in messages of up to 26%.

20/5/21 (Item 7 from file: 35)

DIALOG(R) File 35:Dissertation Abs Online

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01413109 ORDER NO: AADAA-I9514579

**REQUIREMENTS -DRIVEN DATABASE SYSTEMS BENCHMARK METHODOLOGY**

Author: SENG, JIA-LANG

Degree: PH.D.

Year: 1994

Corporate Source/Institution: UNIVERSITY OF MARYLAND (0117)

Co-chairmen: S. BING YAO; ALAN R. HENVER

Source: VOLUME 56/01-B OF DISSERTATION ABSTRACTS INTERNATIONAL.  
PAGE 352. 212 PAGES  
Descriptors: COMPUTER SCIENCE; BUSINESS ADMINISTRATION, GENERAL;  
OPERATIONS RESEARCH  
Descriptor Codes: 0984; 0310; 0796

Benchmarks are vital tools in the performance evaluation and comparison of relational database management systems (RDBMS). Standard benchmarks such as the Wisconsin, TP1, TPC-A, TPC-B, TPC-C, and AS\sp3\$AP benchmarks have been used to assess the performance of RDBMS software. These benchmarks are synthetic and domain-specific in that they model typical applications in a problem domain and create synthetic workloads. Test results from these benchmarks are estimates of possible system performance for certain pre-determined **application types**. When the user domain differs from the standard problem domains or if the application workload is divergent from the synthetic workloads, they do not provide an effective means to measure the system's performance on the user's problem domain. Database system performance on actual domain data and transactions may vary significantly from the benchmark.

In this research, we address the issue by proposing a domain-independent benchmark methodology which is developed from the perspective of the user's **requirements**. We present an **application**-based approach which models the benchmark development in a process of workload representation, transformation, and generation. We develop a more generalized and more precise evaluation method which derives benchmark suites from the actual user domain and produces test workloads from the actual transaction specifications.

Our method comprises three components. They are a high-level application specification language, a translator of the language, and a set of generators for the database and the system transactions. We use the specification language to model and formalize **workload requirements**. We translate and transform the specifications in the translator. We apply the generators to produce the test databases and test workloads.

In this study, we have conducted four experiments to validate the method. We select the TPC-A, Wisconsin, and AS\sp3\$AP benchmarks as our standard test cases in the first three experiments. A generalized test case is used in the fourth experiment to illustrate the generality of our method. An experimental prototype is implemented and used in these experiments. Experimental results demonstrate that our method is capable of modeling standard benchmarks as well as more general benchmark requirements.

20/5/22 (Item 8 from file: 35)  
DIALOG(R)File 35:Dissertation Abs Online  
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01333951 ORDER NO: AAD94-03651  
**WORKLOAD PREDICTION IN THE DESIGN OF DYNAMIC CONTROL SYSTEMS: APPLICATIONS TO ADVANCED MANUFACTURING SYSTEMS (TASK ANALYSIS)**

Author: BI, SHUXIN  
Degree: PH.D.  
Year: 1993  
Corporate Source/Institution: PURDUE UNIVERSITY (0183)  
MAJOR PROFESSOR: GAVRIEL SALVENDY  
Source: VOLUME 54/09-B OF DISSERTATION ABSTRACTS INTERNATIONAL.  
PAGE 4859. 188 PAGES  
Descriptors: ENGINEERING, INDUSTRIAL  
Descriptor Codes: 0546

Human mental workload is one of the most important factors in cognitive task allocation of system design. It is reported that current task allocation methods with generally worded criteria are not very useful in aiding detailed decision-making in system design. While there have been many quantitative criteria available to determine the physical space in human-machine interaction, system designers need some explicit model and criteria to identify the mental workload imposed by the system, to predict human and system performance, to evaluate the alternatives of system

design, and to design the system components. It is argued that the available models of human workload or performance are either too domain-dependent to apply to other system designs or subject-dependent which can not reflect the objective workload imposed by the system. The presented research first suggests a new cognitive task analysis method, which could be applied in the dynamic systems with task arrival uncertainty, and a general conceptual model of human workload prediction in system design. Based on the proposed conceptual model, an analytical model of human workload prediction is developed for advanced manufacturing systems. In the newly developed model, the human workload is represented by a set of system parameters, such as **task arrival rate**, **task complexity**, **task uncertainty**, and schedule tightness, which are considered as the main sources of human workload. In this context, human **workload** becomes an objective **demand** of **systems** on humans, which is independent of any subjective factors. Whether a specified individual or population is overloaded depends upon their workload threshold with respect to the specified task and environment.

The analytical model is tested using twelve subjects in an interactive scheduling experiment. The tasks consisted of scheduling new arrived tasks, dealing with machine failure, and job expedition in a dynamic manufacturing system. The tasks are designed such that each subject is exposed to all the task load levels based on the combinations of design parameters. The conducted ANOVA and ANCOVA analyses demonstrate that human workload is very sensitive to the changes of system parameter levels. A regression analysis further shows that the human workload and system task load can be represented by these parameters. The experiment also validates the U-shape curve relations (not including the "underload" region) between workload and performance.

This research provides a new approach to cognitive task analysis in a dynamic environment with random task arrivals. Further study is suggested on the human workload and task load models proposed in this study. It is hoped that these models could be used by system designers to predict the human workload imposed by systems after both laboratory and industrial validation.

20/5/23 (Item 9 from file: 35)

DIALOG(R)File 35:Dissertation Abs Online  
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01308342 ORDER NO: AAD93-24474

**NEW DIRECTIONS IN WORKLOAD CHARACTERIZATION (PARALLEL SYSTEMS, QUEUING THEORY, SEGREGATION MEASURE)**

Author: WAGNER, THOMAS DEHON

Degree: PH.D.

Year: 1993

Corporate Source/Institution: VANDERBILT UNIVERSITY (0242)

Director: LAWRENCE W. DOWDY

Source: VOLUME 54/04-B OF DISSERTATION ABSTRACTS INTERNATIONAL.

PAGE 2076. 237 PAGES

Descriptors: COMPUTER SCIENCE

Descriptor Codes: 0984

Workload characterization is the process of building models of computer system workloads. The problems of workload characterization received much attention over a decade ago. With the development of parallel **systems** this subject **requires** re-examination. New methods for **workload** characterization are developed. Methods for use with traditional systems as well as methods for use with parallel multiprocessor systems are examined. The existing characterizations of parallel workloads are compared and contrasted and mappings between them are developed.

A method for determining the **workload demand** parameters that describe a multi-class queueing network is presented. This new exponential sieve technique is shown to perform better than traditionally accepted techniques. The workload model that is constructed using this technique is used as input to queueing models and is shown useful in constructing performance prediction models.

A workload characterization based on segregation measures is

introduced. This characterization expresses the error that can be made when modelling multi-class systems with single class queueing models. The behavior of this segregation measure is shown to depend on the variance in mean **demand** in the workload. This variance in mean **demand** is a measure of **system** balance. The segregation measure is also shown to depend on a new measure that expresses how close measured demand data is to single class.

The evolution and widespread use of MIMD multiprocessors is accompanied by new challenges for system modellers. This, in turn, implies new challenges in workload modelling. The prediction of speedup, as additional processors are assigned to a parallel workload, is one such challenge. A new algorithm that identifies phases of homogeneous **processor utilization** in the execution profile of parallel workloads is presented. By identifying these phases, predictions of the speedup characteristics of a parallel program are made more accurately.

Another challenge of MIMD multiprocessor systems is the processor allocation problem. Stochastic learning automata are applied to the **processor** allocation problem. In this **use** of stochastic learning automata, the model of the system and the model of the workload must be combined. Through simulation, this new approach is shown to be an effective solution to the problem of how many processors, from a pool of parallel processors, should be allocated to an arriving job so that total system power is maximized.

20/5/28 (Item 14 from file: 35)

DIALOG(R)File 35:Dissertation Abs Online  
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01123496 ORDER NO: NOT AVAILABLE FROM UNIVERSITY MICROFILMS INT'L.  
**SPECIFICATION AND DESIGN METHODOLOGIES FOR SEMI-HARD REAL-TIME CONTROL SYSTEMS**

Author: MUNTZ, ALICE H.

Degree: PH.D.

Year: 1990

Corporate Source/Institution: UNIVERSITY OF SOUTHERN CALIFORNIA (0208)

Chairman: ELLIS HOROWITZ

Source: VOLUME 51/05-B OF DISSERTATION ABSTRACTS INTERNATIONAL.

PAGE 2461.

Descriptors: COMPUTER SCIENCE

Descriptor Codes: 0984

In my thesis, I investigate a class of real-time control systems in which a variety of types of **time** constraints are imposed on computational **activities**. A subset of critical **activities** must always meet the **time** constraints; other non-critical **activities** can violate **time** constraints within allowable bounds; still others do not have time constraints. These systems are called semi-hard as only a portion of the **activities** must meet stringent **time** constraints.

The classical way of designing real-time systems makes several key assumptions that in practice are false. Three of these assumptions are that (i) the workload is not data dependent, (ii) timing can be a priori determined, and (iii) there is no feedback loop between observations and computation. In practice, the system objectives can be dynamically altered either by the external inputs (from the system operators or other related subsystems) or by changes detected by processing previously collected data, timings vary depending upon the system state; and the control of data collection and data processing forms a feedback loop.

In my thesis, I develop a **software requirements** specification method for semi-hard real-time control software. I also present a design methodology that, given **software requirements** generated using this specification method, it allows one to derive a software design directly.

The key aspects of my thesis research include: (1) methods and notations for specification of **software requirements**, which capture the functional, behavioral and temporal properties of software; (2) methods and notations for describing the dynamic behavior of a software design; (3) a **workload** model which characterizes the resource **demands** of a **system**; (4) an activity taxonomy which characterizes major activity classes in

engineering semi-hard real-time control system; and (5) a strategy and algorithms for deriving an initial task graph (i.e., the control flow model of software architecture) from a given activity graph (i.e., the control flow model of requirements). (Copies available exclusively from Micrographics Department, Doheny Library, USC, Los Angeles, CA 90089-0182.)

20/5/31 (Item 1 from file: 2)

DIALOG(R) File 2:INSPEC

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6035043 INSPEC Abstract Number: C9811-5470-022

**Title: Design of a fault tolerant real-time storage system for multimedia applications**

Author(s): Muntz, R.; Renato Santos, J.; Fabbrocino, F.

Author Affiliation: Dept. of Comput. Sci., California Univ., Los Angeles, CA, USA

Conference Title: Proceedings. IEEE International Computer Performance and Dependability Symposium. IPDS'98 (Cat. No.98TB100248) p.174-83

Publisher: IEEE Comput. Soc, Los Alamitos, CA, USA

Publication Date: 1998 Country of Publication: USA xii+278 pp.

ISBN: 0 8186 8679 0 Material Identity Number: XX98-02539

U.S. Copyright Clearance Center Code: 0 8186 8679 0/98/\$10.00

Conference Title: Proceedings IEEE International Computer Performance and Dependability Symposium. IPDS'98

Conference Sponsor: IEEE Comput. Soc. Tech. Committee on Fault-Tolerant Comput.; IFIP Working Group 7.3 on Performance Evaluation; IFIP Working Group 10.4 on Dependable Comput. & Fault Tolerance; IFIP Working Group 6.3 on Performance of Commun. Syst.; Center for Adv. Comput. & Commun. Duke Univ.; Clemson Univ.; Univ. Vienna - Austria; ACM SIGMETRICS

Conference Date: 7-9 Sept. 1998 Conference Location: Durham, NC, USA

Language: English Document Type: Conference Paper (PA)

Treatment: Applications (A); Practical (P)

**Abstract:** We describe the design and implementation of the RIO (Randomized I/O) multimedia object server which manages a set of parallel disks and supports real-time throughput and statistical delay guarantees. The original implementation, on an SMP (Sun Microsystems E4000), has been ported to a cluster of PCs. The new version uses a similar philosophy with respect to allocation of data storage and scheduling of requests. However the parallel "shared nothing" architecture raises all the issues of latency, scalability, etc., that are familiar in parallel and distributed systems. Our requirements are particularly demanding since we expect to support a variety of multimedia applications with varying workload requirements and data reference patterns. 3D interactive applications, video, hypermedia and interactive scientific visualization of terabyte size data sets are among the applications we support. This paper details the design issues we addressed and the results of detailed simulation studies which dictated the design choices made. (10 Refs)

Subfile: C

Descriptors: data visualisation; fault tolerant computing; hypermedia; multimedia systems; real-time systems; storage management

Identifiers: fault tolerant real-time storage system; multimedia applications; multimedia object server; parallel disks; real-time throughput; statistical delay guarantees; Sun Microsystems E4000; data storage; scheduling; latency; scalability; 3D interactive applications; hypermedia; interactive scientific visualization; simulation studies

Class Codes: C5470 (Performance evaluation and testing); C6130B (Graphics techniques); C6130M (Multimedia); C7250 (Information storage and retrieval); C6120 (File organisation)

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20/5/32 (Item 2 from file: 2)

DIALOG(R) File 2:INSPEC

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5779913 INSPEC Abstract Number: C9801-6160B-015

**Title: ScaleTool: a GUI-based database scalability evaluation tool**

Author(s): Helal, A.; Forner, J.  
 Author Affiliation: Dept. of Comput. Sci., Purdue Univ., West Lafayette, IN, USA  
 Conference Title: Proceedings of the IASTED/ISMM International Conference Modelling and Simulation p.184-7  
 Editor(s): Hamza, M.H.  
 Publisher: IASTED-ACTA Press, Anaheim, CA, USA  
 Publication Date: 1996 Country of Publication: USA iii+466 pp.  
 ISBN: 0 88986 201 X Material Identity Number: XX96-00825  
 Conference Title: Proceedings of IASTED International Conference on Modelling and Simulation  
 Conference Sponsor: IASTED  
 Conference Date: 25-27 April 1996 Conference Location: Pittsburgh, PA, USA  
 Language: English Document Type: Conference Paper (PA)  
 Treatment: Practical (P); Theoretical (T)  
 Abstract: We present a GUI-based tool called ScaleTool that is designed for studying the scalability of database systems. Database systems are growing in three directions: (1) the geographical (nodal) span, where the number of data sites comprising the system increases (a horizontal growth), (2) the population of users and their transactions, where the **workload** of concurrent **database** operations **demands** higher degree of multiprogramming (a vertical growth), and (3) the volume of data store, where the size of the data and the rate by which it accumulates **require** higher capacity storage **devices** and higher I/O and network transfer rates. ScaleTool can be used to study issues of scale in the vertical direction of growth. These are issues of concurrency control under very high contention. The tool is typically used in a backward engineering process to determine the requirements and the feasibility of achieving certain **TPS** in a multiprogrammed environment. We give the details of ScaleTool, and demonstrate its capabilities in finding a performance scalability matrix for certain **TPS** requirements. (7 Refs)  
 Subfile: C  
 Descriptors: concurrency control; database management systems; graphical user interfaces; multiprogramming; software tools  
 Identifiers: ScaleTool; GUI-based database scalability evaluation tool; database systems; multiprogramming; vertical growth; concurrency control; backward engineering; multiprogrammed environment; **TPS** requirements  
 Class Codes: C6160B (Distributed databases); C6180G (Graphical user interfaces); C6150J (Operating systems); C6150N (Distributed systems software); C6115 (Programming support)  
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20/5/34 (Item 4 from file: 2)

DIALOG(R) File 2:INSPEC

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5677898 INSPEC Abstract Number: B9710-6430H-002, C9710-5320C-001

**Title: Hierarchical storage servers for video on demand : feasibility, design and sizing**

Author(s): Merchant, A.; Qiang Ren; Sengupta, B.  
 Author Affiliation: Hewlett-Packard Labs., Palo Alto, CA, USA  
 Conference Title: IEEE GLOBECOM 1996. Communications: The Key to Global Prosperity. Conference Record (Cat. No.96CH35942) Part vol.1 p.272-8 vol.1  
 Publisher: IEEE, New York, NY, USA  
 Publication Date: 1996 Country of Publication: USA 3 vol. (xvi+xxxiii+xvii+2169) pp.  
 ISBN: 0 7803 3336 5 Material Identity Number: XX96-02662  
 U.S. Copyright Clearance Center Code: 0 7803 3336 5/96/\$5.00  
 Conference Title: Proceedings of GLOBECOM'96. 1996 IEEE Global Telecommunications Conference  
 Conference Sponsor: IEEE Commun. Soc.; IEE; UKRI Commun. Chapter; BT; FUJITSU; ALCATEL Telecom; Braodband Technol.; NORTEL Northern Telecom; Lucent Technol.; ERICSSON  
 Conference Date: 18-22 Nov. 1996 Conference Location: London, UK  
 Language: English Document Type: Conference Paper (PA)

Treatment: Applications (P); Practical (P); Theoretical (T)

Abstract: We study the problem of designing a hierarchical storage server to support a given **rate** of video **requests** within specified quality of service requirements. We ask what combinations of disk storage, disk bandwidth and tertiary storage and bandwidth are required to support given request rates for videos, and how these resources should be configured to minimize cost. We show a basic design, and a series of refinements that provide the required performance at a lower cost. (9 Refs)

Subfile: B C

Descriptors: interactive video; magnetic disc storage; network servers; optical disc storage

Identifiers: hierarchical storage servers; video on demand; server design ; **server sizing** ; video requests; quality of service; magnetic disk storage; disk bandwidth; tertiary storage; cost minimization; performance; optical disks

Class Codes: B6430H (Video recording); B3120B (Magnetic recording ); B4120 (Optical storage and retrieval); C5320C (Storage on moving magnetic media); C5630 (Networking equipment); C5320K (Optical storage)

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20/5/38 (Item 8 from file: 2)

DIALOG(R)File 2:INSPEC

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4641468 INSPEC Abstract Number: C9405-5420-001

**Title: System configuration of a database processor RINDA**

Author(s): Nose, J.; Hayami, H.

Journal: Transactions of the Information Processing Society of Japan  
vol.34, no.12 p.2521-33

Publication Date: Dec. 1993 Country of Publication: Japan

CODEN: JSGRD5 ISSN: 0387-5806

Language: Japanese Document Type: Journal Paper (JP)

Treatment: Practical (P)

Abstract: This paper investigates parameters for configuring RINDA, a database processor system. RINDA is an attached **processor used** as dedicated hardware for high-performance processing of non-indexed queries, for cases where indexing is not feasible in a relational database. This processor connects to a general purpose computer via an I/O interface. A building block approach is adopted for flexible adaptation to a variety of workloads. Ordinary indexed queries and updates are handled by the database management system (DBMS) alone, running on the general purpose computer, whereas RINDA processes nonindexed queries under DBMS control. This paper clarifies the areas of RINDA applicability and the optimal **system** configuration, by determining the **required** number of processors, connection method, buffer capacity and other resource conditions for realizing the **required** performance under various **workloads**, when processing includes both indexed and non-indexed queries. (14 Refs)

Subfile: C

Descriptors: database management systems; indexing; query processing; satellite computers; special purpose computers

Identifiers: system configuration; database processor; RINDA; attached processor; dedicated hardware; relational database; I/O interface; indexed queries; database management system; connection method; buffer capacity; resource conditions

Class Codes: C5420 (Mainframes and minicomputers); C6160 (Database management systems (DBMS))

20/5/62 (Item 2 from file: 95)

DIALOG(R)File 95:TEME-Technology & Management

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00778802 I94043442259

**Titel japanisch**

(Systemkonfiguration des Datenbankprozessors RINDA)

(System configuration of a database processor RINDA)

Nose, J; Hayami, H

Transactions of the Information Processing Society of Japan, 4, n12,  
pp2521-2533, 1993  
Document type: journal article Language: Japanese  
Record type: Abstract  
ISSN: 0387-5806

ABSTRACT:

This paper investigates parameters for configuring RINDA, a database processor system. RINDA is an attached **processor used** as dedicated hardware for high-performance processing of non-indexed queries, for cases where indexing is not feasible in a relational database. This processor connects to a general purpose computer via an I/O interface. A building block approach is adopted for flexible adaptation to a variety of workloads. Ordinary indexed queries and updates are handled by the database management system (DBMS) alone, running on the general purpose computer, whereas RINDA processes nonindexed queries under DBMS control. This paper clarifies the areas of RINDA applicability and the optimal **system** configuration, by determining the **required** number of processors, connection method, buffer capacity and other resource conditions for realizing the **required** performance under various **workloads**, when processing includes both indexed and non-indexed queries.

DESCRIPTORS: DATABASE MANAGEMENT SYSTEM; DOCUMENT INDEXING; SATELLITE COMPUTERS; COMPUTER ARCHITECTURE; RELATIONAL DATABASES; **MICROPROCESSORS** ; BUFFER STORAGE; **USER** INTERFACES; QUERY PROCESSING  
IDENTIFIERS: SPECIAL PURPOSE COMPUTERS; SYSTEM CONFIGURATION; DATABASE PROCESSOR; RINDA; ATTACHED PROCESSOR; DEDICATED HARDWARE; RELATIONAL DATABASE; INDEXED QUERIES; CONNECTION METHOD; BUFFER CAPACITY; RESOURCE CONDITIONS; Datenbankverwaltungssystem; Systemkonfiguration

Set	Items	Description
S1	136	(SIZING OR SIZE OR SIZES) (5N) (SERVER? ? OR WEBSERVER? ? OR DATABASE? ? OR DBMS OR RDBMS)
S2	1475	(REQUIR? OR NEEDS OR NECESS? OR DEMAND? ? OR CONFIGUR?) (3N-) (SERVER? OR WEBSERVER? OR APPLICATION? OR PROGRAM? ? OR SOFTWARE OR DATABASE? OR DBMS OR RDBMS) (3N) (HARDWARE OR CLIENT? ? OR PC? ? OR COMPUTER? ? OR WORKSTATION? ?)
S3	280	(REQUIR? OR NEEDS OR NECESS? OR DEMAND? ? OR CONFIGUR?) (3N-) (SERVER? OR WEBSERVER? OR APPLICATION? OR PROGRAM? ? OR SOFTWARE OR DATABASE? OR DBMS OR RDBMS) (3N) (TERMINAL? ? OR DEVICE? ? OR EQUIPMENT OR MACHINE? ? OR OPERATING)
S4	805	(WORKLOAD? ? OR WORK()LOAD? ? OR PROCESSING OR PERFORMANCE OR CAPACITY) (5N) (REQUIR??? OR REQUIREMENT? ? OR NEEDS OR NECESSARY OR NECESSIT???? OR DEMAND? ?)
S5	4493	(TYPE? ? OR KIND? ? OR SORT? ? OR FAMILY OR CATEGORY OR CLASS OR BRAND? ? OR VARIET??? OR GROUP? ?) (5N) (SERVER? ? OR WEBSERVER? ? OR APPLICATION? ? OR PROGRAM? ? OR SOFTWARE? ? OR DATABASE? ? OR DBMS OR RDBMS)
S6	842	(PROCESSOR? OR MICROPROCESSOR? OR PROCESSING()UNIT OR CPU - OR MPU) (5N) (UTILIZ? OR UTILIS? OR USE? ? OR ACTIVE OR BUSY OR WORKING OR OPERAT??? OR OPERATION? ? OR FUNCTION? ? OR FUNCTIONING OR RUN???? OR ACTIVE OR ACTIVIT???)
S7	17	(PROCESSOR? OR MICROPROCESSOR? OR PROCESSING()UNIT OR CPU - OR MPU) (5N) (IDLE? ? OR IDLING OR INACTIV? OR INOPERA? OR REST? OR WAIT? OR LATENC??? OR LATENT)
S8	1577	(TRANSACTION? ? OR ACTIVIT??? OR PROCESSES OR ACTION? ? OR EVENT? ? OR JOB? ? OR TASK? ? OR REQUEST? ? OR QUERY OR QUERIES) (5N) (RATE OR SPEED OR TIME OR SECOND? ? OR MINUTE? ?) OR TPS
S9	246	CAPACITY() PLANNING
S10	310	(S1:S4 OR S9) AND S5:S8
S11	0	(S1:S4 OR S9) AND S5 AND S6:S7 AND S8
S12	27	S1 AND S5:S8
S13	6	SIZING(5N) (SERVER? ? OR WEBSERVER? ? OR DATABASE? ? OR DBMS OR RDBMS)
S14	2	S13 AND S5:S8
S15	184	S2:S3 AND S5:S8
S16	11	S15 AND S4
S17	0	S5 AND S6:S7 AND S8
S18	13	S14 OR S16
S19	24	(WORKLOAD? ? OR WORK()LOAD? ?) (5N) (REQUIR??? OR REQUIREMENT? ? OR NEEDS OR NECESSARY OR NECESSIT???? OR DEMAND? ?)
S20	6	S19 AND S5:S8
S21	18	S18 OR S20

21/5/1

DIALOG(R) File 256:SoftBase:Reviews,Companies&Prods.  
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01537071 DOCUMENT TYPE: Product

**PRODUCT NAME: DataPropagator Relational (537071)**

IBM Corp (351245)  
1133 Westchester Ave  
White Plains, NY 10604 United States  
TELEPHONE: (914) 499-1900

RECORD TYPE: Directory

CONTACT: Sales Department

DataPropagator Relational automates the copying of data between **databases** in IBM's DB2 **family**, eliminating one of the hurdles to right- **sizing** applications or building a client/ **server** environment. It can replace entire contents of a copy from the source (refreshing) or transfer only changes from source to target (updating), offering the flexibility to meet the exact needs of the users' applications. The product accommodates a broad range of user requirements for data replications, enhances data for improved analysis and maintains historical change information. Features include: (1) a graphical interface that makes it easy to define copy operations through DataHub; and (2) supports DB2, DB2 for OS/2, DB2 for AIX and DB2 for OS/400 databases.

DESCRIPTORS: Database Utilities; Network Software; Client/server; LANs;  
Distributed Processing

HARDWARE: IBM PC & Compatibles  
OPERATING SYSTEM: OS/2; DB2; AIX; OS/400  
PROGRAM LANGUAGES: Not Available  
TYPE OF PRODUCT: Mini; Micro  
POTENTIAL USERS: Cross Industry  
PRICE: \$200

OTHER REQUIREMENTS: 12MB RAM; DB2; 80386+ CPU required  
REVISION DATE: 950728

21/5/2

DIALOG(R) File 256:SoftBase:Reviews,Companies&Prods.  
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01077755 DOCUMENT TYPE: Product

**PRODUCT NAME: IQS Smart Forms (077755)**

IQS Inc (538353)  
19706 Center Ridge Rd  
Cleveland, OH 44116-3637 United States  
TELEPHONE: (440) 333-1344

RECORD TYPE: Directory

CONTACT: Sales Department

IQS Smart Forms (TM) from IQS is a Web-based solutions for automating the complex and rapidly evolving advanced product quality planning (APQP) and production part approval process (PPAP) functions. The automation of these **processes**, coupled with real- **time** collaboration, will transform existing **processes** for both suppliers and original equipment manufacturers (OEMs) through shortened time to market, increased focus on core competencies, global synchronization, and elimination of nonvalue-added tasks and risk reduction. Today's quality systems are often delivered through legacy

systems using **client** /server or mainframes, and often **require** cumbersome and costly **processing** . Using Web technologies, suppliers can now implement quality process improvements using e-sourcing. Using ISQ Smart Forms, companies can process AIAG forms, FMEAs, control plans, and other quality documentation. They can set up APQP steps and checklists, as well as PPAP requirements, using their own standards or ones set by AIAG. The system offers one Web-hosted place where companies can check all document management elements, such as due dates, issue dates, status, and assigned person.

DESCRIPTORS: ASP (Application Service Providers); Auto Manufacturing; Business Forms; Quality Assurance

HARDWARE: Hardware Independent  
OPERATING SYSTEM: Operating System Independent  
PROGRAM LANGUAGES: Not Available  
TYPE OF PRODUCT: Mainframe; Mini; Micro; Workstation  
POTENTIAL USERS: Cross Industry  
PRICE: \$100 per user per month

REVISION DATE: 020327

21/5/3  
DIALOG(R) File 256:SoftBase:Reviews,Companies&Prods.  
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01046981 DOCUMENT TYPE: Product

**PRODUCT NAME: LSF Suite Standard Edition (046981)**

Platform Computing Inc (617563)  
25 Metro Dr #100  
San Jose, CA 95110 United States  
TELEPHONE: (408) 392-4923

RECORD TYPE: Directory

CONTACT: Sales Department

LSF Suite Standard Edition from Platform Computing is a workload management tool for high-performance computing businesses. It leverages the power within UNIX, Linux, and Windows-based systems to enable businesses to maximize their productivity and efficiency. LSF Suite Standard Edition continually tracks computer resources to determine the optimal system to perform each job. It enables people to conduct more simulations and tests by monitoring all jobs, ensuring that no work is lost. It delegates tasks to systems according to the amount of resources they **require** , serving to optimize **workload** efficiency. LSF Suite Standard Edition scales to limitless systems and jobs. It can be configured to create queues based on any criteria and to implement parameters for starting and stopping jobs, limiting the number of **jobs** , and controlling the amount of **time** devoted to **jobs** . It distributes resources fairly among users and can be easily administered and updated at any time, without interrupting service. Additionally, LSF Suite Standard Edition reschedules or reappoints jobs to other systems if a job fails and can automatically restart jobs in the event of a system failure. LSF Suite Standard Edition's optional components include LSF Parallel for managing parallel jobs and Platform MultiCluster for building metacomputing clusters.

DESCRIPTORS: Performance Monitors; Distributed Processing; Computer Resource Management; System Performance; Supercomputing; System Monitoring; Network Management; Network Administration Tools; Network Servers; Load Balancing; Data Center Operations; Network Software

HARDWARE: UNIX; IBM PC & Compatibles; Sun; Silicon Graphics; DEC; HP; Cray ; NEC; Fujitsu  
OPERATING SYSTEM: Windows NT/2000; Solaris; IRIX; Linux; UNIX; AIX; HP-UX;

Solaris

PROGRAM LANGUAGES: C; Perl  
TYPE OF PRODUCT: Mainframe; Mini; Micro; Workstation  
POTENTIAL USERS: Cross Industry, High-Performance Computing  
PRICE: Available upon request; Internet demo available

DOCUMENTATION AVAILABLE: User manuals; reference manuals  
TRAINING AVAILABLE: Training; on-site training; technical support; support  
contracts available  
REVISION DATE: 000000

21/5/4

DIALOG(R)File 256:SoftBase:Reviews,Companies&Prods.  
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00135700 DOCUMENT TYPE: Review

**PRODUCT NAMES: Enterprise Application Integration (EAI) (841331)**

**TITLE: Integration Across the Enterprise**  
AUTHOR: Tong, Ping Lu, Louis  
SOURCE: eAI Journal, v3 n11 p35(3) Nov 2001  
HOMEPAGE: <http://www.eaijournal.com>

RECORD TYPE: Review  
REVIEW TYPE: Product Analysis  
GRADE: Product Analysis, No Rating

Increasingly, vertical service providers (VSPs) are providing customers with targeted enterprise application integration (EAI) technology and services. The deployment of real- **time transaction** and just-in- **time** (JIT) systems is driving EAI **demands**. A traditional **client / server** model is being replaced by a loosely coupled message- oriented middleware (MOM) model. In implementing MOM systems, VSPs and their customers must define their protocol, platform, and programming interface **requirements**. They also must address reliability, **performance**, load balancing, and management issues. Additionally, any VSP technology that is linked with a high-end transaction system must provide excellent scalability features. As well, multiple VSP application servers should be able to support the same message feeds and database servers. Tapping middleware clustering and parallel database servers, VSPs can offer excellent fault tolerance capabilities. VSPs should employ XML standards and should provide customers with transaction management-system monitoring.

COMPANY NAME: Vendor Independent (999999)  
SPECIAL FEATURE: Charts  
DESCRIPTORS: Enterprise Application Integration; Fault Tolerance;  
Integration Software; Middleware; ASP (Application Service Providers)  
REVISION DATE: 20020430

21/5/5

DIALOG(R)File 256:SoftBase:Reviews,Companies&Prods.  
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00122984 DOCUMENT TYPE: Review

**PRODUCT NAMES: ZENworks for Servers (789976)**

**TITLE: Novell boosts virtual management: ZENworks for Servers...**  
AUTHOR: Connolly, P J  
SOURCE: InfoWorld, v22 n13 p44(1) Mar 27, 2000  
ISSN: 0199-6649  
HOMEPAGE: <http://www.infoworld.com>

RECORD TYPE: Review  
REVIEW TYPE: Review

GRADE: B

Novell's ZENworks for Servers 1.0, a set of server management tools, gets good marks overall, especially for a tiered software distribution model that can be used over slow WAN links, support for scheduled distribution of key server software packages, and a reduced need for visits to remote sites that do not have local administrators. However, execution of the ConsoleOne management interface is sluggish and support is provided only for NetWare servers. With ZENworks for Servers 1.0, users can implement uniform server management practices and better deploy support staff by reducing travel time. ZENworks for Servers 1.0 has better tools for management of **software** distribution, **operating** system **configuration**, and start-up/shut-down processes. Administrators can thereby reduce the number of tedious and **time**-consuming **tasks** **required** to maintain server uniformity and **performance**. Implementation of ZENworks for Servers 1.0 can be costly; deployment is advised only for environments with more than a dozen servers. ManageWise users under contract can get a free upgrade to ZENworks for Servers 1.0. One of the neatest features of ZENworks for Servers 1.0 is the ability to modify procedures for shut down, restart, and server rebooting. Testers found that execution of the <down> command would actually confirm that software modules on test servers were not active before the shutdown process was run.

COMPANY NAME: Novell Inc (344893)  
SPECIAL FEATURE: Charts  
DESCRIPTORS: Network Servers; Network Administration Tools; Network Software; System Monitoring; Network Management; NetWare; WANs  
REVISION DATE: 20000930

21/5/6

DIALOG(R) File 256:SoftBase:Reviews,Companies&Prods.  
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00118279 DOCUMENT TYPE: Review

PRODUCT NAMES: SilkPerformer 3.0 (742929)

TITLE: SilkPerformer tests Web-site fabrics  
AUTHOR: Rapoza, Jim  
SOURCE: PC Week, v16 n30 p34(1) Jul 26, 1999  
ISSN: 0740-1604

RECORD TYPE: Review  
REVIEW TYPE: Review  
GRADE: B

Segue Software's Silk Performer 3.0, a powerful testing package with broad-based features, supports testing of database connections and diversified Web applications. Rated good overall with excellent capability, Silk Performer 3.0 allows companies to stress-an-test Web and database applications to home in on problems before they cause costly and worrisome Web site failures. The software is versatile and provides comprehensive testing tools, but its test scripting tools are very difficult to use. Users can test many **types** of **applications**, and reporting tools are robust and useful. However, only Oracle and Microsoft SQL Server databases can be load tested. During testing of Silk Performer 3.0, Workload Wizard crashed on systems connected to NetWare clients. Companies with elaborate and nonstatic sites, including those with extranets and support for business-to-business communications, will find Version 3.0 a good choice for making critical assessments, including those related to the need for equipment upgrades or additions. However, companies simply testing Web site and We-enabled applications can get by with simpler tools, such as RadView Software's WebLoad. Silk Performer 3.0 provides a new wizard that guides users through steps **required** to create a **workload** process, but the feature crashed with NetWare client service installed. Silk Performer 3.0 also has more powerful tools for running virtual clients as specific browser types than are provided in other testing tools.

COMPANY NAME: Segue Software Inc (561525)  
SPECIAL FEATURE: Screen Layouts Charts  
DESCRIPTORS: Software Testing; Program Development; Internet Utilities;  
IBM PC & Compatibles; SQL; Oracle  
REVISION DATE: 20010330

21/5/7

DIALOG(R)File 256:SoftBase:Reviews,Companies&Prods.  
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00116675 DOCUMENT TYPE: Review

**PRODUCT NAMES: Novell Directory Services (NDS) for NT (721271); Microsoft Active Directory (654001)**

**TITLE: Directory Services**  
AUTHOR: McFadden, Mark  
SOURCE: ent, v4 n6 p22(2) Mar 24, 1999  
ISSN: 1085-2395  
HOMEPAGE: <http://www.entmag.com>

RECORD TYPE: Review  
REVIEW TYPE: Product Analysis  
GRADE: Product Analysis, No Rating

Novell's Novell Directory Services (NDS) for NT and Microsoft's Microsoft Active Directory, two network directory services, are highlighted in a discussion of the ways in which directory services are currently used and the challenges involved in administering them. Currently, network operating systems (NOSs) still operate under a centralized model, in which each user has a password, home file directory, and a **group** of permissions. Dividing **application** workload among various platforms is efficient, but administration of **clients** and servers can **require** significant resources. The **workload** results from the number of servers and from systems and applications that have their own access control methods and directories. A recent survey indicates that Fortune 500 companies each have an average of 190 directories, and supporting them is increasingly complex due to the number of formats to be supported and the disparate systems available to collaborating users. Directories can be used as the basis for e-commerce as well, such as the Automotive Network Exchange, which provides an extranet for e-commerce between suppliers and the automotive industry. Windows NT users can choose between NDS and Active Directory, which will be part of Windows 2000. Administration problems may be eased by the use of metadirectories, which integrate directories by linking various different schema and attributes into a universal, logical view.

COMPANY NAME: Novell Inc (344893); Microsoft Corp (112127)  
DESCRIPTORS: Network Directories; Computer Resource Management; Network Software; Auto Manufacturing; Windows NT/2000; Network Administration Tools; LANs  
REVISION DATE: 20011030

21/5/8

DIALOG(R)File 256:SoftBase:Reviews,Companies&Prods.  
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00113560 DOCUMENT TYPE: Review

**PRODUCT NAMES: Microsoft SQL Server 7.0 (590096)**

**TITLE: SQL Server 7.0 is bulking up to fight**  
AUTHOR: Gruske, Carolyn  
SOURCE: Computerworld Canada, v14 n23 p34(2) Nov 20, 1998  
ISSN: 1484-9089  
HOMEPAGE: <http://www.lti.on.ca>

RECORD TYPE: Review  
REVIEW TYPE: Product Analysis  
GRADE: Product Analysis, No Rating

Microsoft SQL Server 7.0 is trying to move up to the **class** of enterprise **database**, and it has added some features that were previously missing from the offering. SQL Server 7.0 now has row-level locking, and the latest version stresses scalability, performance, and reliability. Microsoft's strategy is to market to both ends of the customer range by supporting large, complex databases, as well as smaller-scale implementations. For the enterprise, Microsoft has added a Data Transformation Tool to import data from any ODBC-compliant data source and deposit it into any other ODBC-compliant database. The Data Transformation Tool can be used as a transport and transformation mechanism, and replaces the older Bulk Copy tool. Other changes designed to target enterprise users are increases in capacity. Page size has gone from 2KB to 8KB, and the number of columns per row has increased from 250 to 1,024, and row size from 1,962 to 8,060 bytes per row. Several database management functions have also been automated, such as memory tuning and **database sizing**. SQL Server 7.0 has also adopted the Microsoft Back Office Management Console as its primary control interface, and the Explorer format for its viewer.

COMPANY NAME: Microsoft Canada (464627)  
SPECIAL FEATURE: Screen Layouts  
DESCRIPTORS: Program Development; Database Management; Database Servers;  
Network Software; SQL Server  
REVISION DATE: 20000830

21/5/9

DIALOG(R) File 256:SoftBase:Reviews,Companies&Prods.  
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00110342 DOCUMENT TYPE: Review

PRODUCT NAMES: Microsoft Windows NT (347973); DSS Agent (516945); DSS Web (619981); DSS Broadcaster (693669)

TITLE: Keeping Hospitals Healthy  
AUTHOR: Staff  
SOURCE: Software Magazine, v18 n11 p67(2) Aug 1998  
ISSN: 0897-8085  
HOMEPAGE: <http://www.softwaremagazine.com>

RECORD TYPE: Review  
REVIEW TYPE: Product Analysis  
GRADE: Product Analysis, No Rating

Microsoft's Microsoft Windows NT and Microstrategy's DSS Agent, DSS Web, and DSS Broadcaster are components included in Premier's comparative data warehouse, which was created to reduce the **workload** formerly **required** to query the company's database of competitive positioning information and for generating custom reports. Premier, a health care alliance, helped Microsoft win The Data Warehousing Institute's 1998 Award for Best Practices in Data Warehousing in the **Applications** of Data Warehousing/Data Marts **category**. The installation can now generate extensively particularized and customized reports in just seconds, and Premier forecasts savings of up to \$450,000 each year in full-time employment expenses and other costs, so that staff can concentrate on development of other products. Premier aims to eliminate data storage in incompatible databases and to give customers much more detailed access to market data. Customers wanted more than summary-level detail, and wanted to allow individual users to quickly analyze detailed data autonomously. The system was designed from the decision support system outward because querying tools cannot be considered expendable, when hundreds of users must be supported. Microstrategy was able to optimize SQL for all major relational databases, and Premier is considering use of DSS Broadcaster,

which permits generation of personalized reports, which are pushed via e-mail, fax, pager, or mobile phone.

COMPANY NAME: Microsoft Corp (112127); MicroStrategy Inc (522643)  
DESCRIPTORS: Windows NT/2000; Decision Support Systems; Information Retrieval; Report Generators; Health Care Management; Data Warehouses  
REVISION DATE: 20000830

21/5/10

DIALOG(R)File 256:SoftBase:Reviews,Companies&Prods.  
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00103611 DOCUMENT TYPE: Review

**PRODUCT NAMES: emWare Embedded Micro Interface Technology (EMIT) (673498)**

**TITLE: Managing Devices with the Web**  
AUTHOR: Howard, Michael Sontag, Chris  
SOURCE: Byte, v22 n9 p45(2) Sep 1997  
ISSN: 0360-5280  
HOMEPAGE: <http://www.byte.com>

RECORD TYPE: Review  
REVIEW TYPE: Review  
GRADE: A

emWare's emWare Embedded Micro Interface Technology (EMIT) provides an interface that allows users to control and monitor devices with a World Wide Web browser. EMIT pushes as many tasks as possible to a Windows or UNIX machine, even though the architecture used is a skinny server/fat client architecture whose Web browser has limited functions. The device can gain access to tasks **requiring** lots of **processing** power on the client using a lightweight distributed computing architecture deployed by emWare. EMIT's **device** -resident Web **server** **needs** only 30 bytes of RAM and 750 bytes of ROM to run, so that it can run on many low-priced embedded microcontrollers, as well as the largest **microprocessors**. EMIT can also **use** on-board EPROM to manage other device data, including logging information, or to store JavaScript class files and Hypertext Markup Language (HTML) documents. As for the client, the host system employs a library of preprogrammed functions that reduce resource usage by assembling the GUI in the browser and assisting with management of communications with device-specific functions. EMIT provides file storage and retrieval, device subroutine invocation, security, device variable access, and device events. Five software modules are included: emObjects, emManager, emMicro, Microtags, and emNet.

COMPANY NAME: emWare (635791)  
SPECIAL FEATURE: Charts Screen Layouts  
DESCRIPTORS: Embedded Systems; Internet Utilities; System Monitoring; Computer Security; Distributed Processing; Network Administration Tools  
; Network Management; Thin Clients; Internet Security  
REVISION DATE: 20020130

21/5/11

DIALOG(R)File 256:SoftBase:Reviews,Companies&Prods.  
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00102054 DOCUMENT TYPE: Review

**PRODUCT NAMES: WinFrame/Enterprise 1.7 Beta (621315)**

**TITLE: WinFrame helps bring Windows to thin clients**  
AUTHOR: Biggs, Maggie  
SOURCE: InfoWorld, v19 n35 p99(2) Sep 1, 1997  
ISSN: 0199-6649  
HOMEPAGE: <http://www.infoworld.com>

RECORD TYPE: Review  
REVIEW TYPE: Review  
GRADE: A

Citrix Systems' WinFrame/Enterprise 1.7 Beta, a remote access application server, is a good solution for heavily distributed, Windows-centered environments that wish to make server-based Windows applications available to remote or thin clients. It has the ability to cluster WinFrame servers to enhance scalability, and can configure applications for load balancing. Support is provided for Web, Macintosh, and UNIX **clients**. **Server-side hardware requirements** are considerable, because **applications** cannot be fully shared over end user sessions. Remote access is only available in Windows applications, and beta bugs were found during configuration of remote access services. Citrix's Intelligent Console Architecture (ICA) protocol provides communication between and end-user machine and a multi-user version of Windows NT 3.51 on the WinFrame server. Use of ICA reduces resource use on end-user machines, a special advantage for thin clients or users of portable computers. End-user sessions are handled individually, except for application sharing, which means that many sessions must run concurrently. This can require balancing of users over multiple WinFrame servers to enhance **performance**. Configuration of a WinFrame **server requires** consideration of the **type** of end- **user** connections and quantity of server **processors** and memory available. Administration tools are powerful, and support for remote management of multiple WinFrame servers is useful.

PRICE: \$5995

COMPANY NAME: Citrix Systems Inc (502545)  
SPECIAL FEATURE: Screen Layouts Charts  
DESCRIPTORS: Network Software; Remote Network Access; Windows; IBM PC & Compatibles; Windows NT/2000; Apple Macintosh; Network Servers; LANs; UNIX; Thin Clients; MacOS  
REVISION DATE: 20020130

21/5/12

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00083510 DOCUMENT TYPE: Review

PRODUCT NAMES: GUI Sys 3.0 (587028); Janna Contact 95 (543161);  
UnInstaller 3 for Networks (431303); BoundsChecker for DOS 3.0 Pro Edition (288756)

TITLE: Lab Notes  
AUTHOR: Coffee, Peter Rapoza, Jim  
SOURCE: PC Week, v12 n39 p79(3) Oct 2, 1995  
ISSN: 0740-1604

RECORD TYPE: Review  
REVIEW TYPE: Review  
GRADE: A

Lab tests of four products include those for Client/Server Technology's GUI Sys 3.0, a **family** of **application** development tools. The tools demonstrate design that incorporates large quantities of development expertise; with them, programmers can with little effort convert text-based minicomputer and mainframe applications to client/server systems with good-looking Visual Basic desktop clients. Janna Systems' Contact 95 is a reliable contact management product for Windows 95 with links to Microsoft's Exchange and Schedule+ 7.0, but resource **requirements** are substantial and **performance** could be better. MicroHelp's UnInstaller 3 for Networks allows Windows network administrators to clean up and remove unused files from network drives; a NetDecoy feature removes applications from clients and servers easily. NuMega's Bounds Checker 3.0 ProEdition

helps developers find coding errors with many tools that work at all stages of development.

COMPANY NAME: Jacada Inc (611779); Siebel Systems Canada Ltd (598798);  
Network Associates Inc (613304); Compuware Corp (474959)  
SPECIAL FEATURE: Screen Layouts  
DESCRIPTORS: **Program** Development; Client/ **server** ; Windows; Address  
Books; IBM **PC** & Compatibles; Conversion **Software** ; Network  
Administration Tools; **Configuration** Management; Software Testing;  
Network Software; Visual Basic  
REVISION DATE: 20020422

21/5/13

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00080308 DOCUMENT TYPE: Review

PRODUCT NAMES: **Best/1** (543276)

TITLE: **BGS' BEST/1 Pieces Together The Puzzle**  
AUTHOR: Esch, Jim  
SOURCE: HP Professional, v9 n7 p18(1) Jul 1995  
ISSN: 0986-145X  
HOMEPAGE: <http://www.hppro.com>

RECORD TYPE: Review  
REVIEW TYPE: Review  
GRADE: A

Many UNIX-based performance and capacity managers do not accommodate the full range of capacity management needs. When a utility company wanted to analyze **CPU utilization** on their RS/6000 servers, most of the products they reviewed included a real-time monitor, but were unable to group data into **workloads**. This **requires** the administrator to examine every single process, which may run into the hundreds every day. With BGS Systems' Best/1 Performance Assurance, the utility was able to avoid having to get into that level of detail. The software includes a performance monitor, Oracle and Sybase facilities, and supports SunOS, Solaris, AIX, and HP-UX. Best/1 allows the shop, which is migrating several **applications** off the mainframe, to **group server applications** into workloads. The monitor utilizes intelligent agents to diagnose problems as they occur, and the Best/1-Predict utility provides what-if modeling for capacity planning.

PRICE: \$25000

COMPANY NAME: BMC Software Inc (467219)  
SPECIAL FEATURE: Screen Layouts  
DESCRIPTORS: System Performance; UNIX; Capacity Planning; System Utilities  
; Technical Support; IBM RS/6000; Data Center Operations; Sun; SunOS;  
Solaris; HP-UX; HP  
REVISION DATE: 20010930

21/5/14

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00078758 DOCUMENT TYPE: Review

PRODUCT NAMES: **Solstice AutoClient** (556173)

TITLE: **Networking Goes Automatic**  
AUTHOR: Kapustka, Paul  
SOURCE: Information Week, v528 p92(2) May 22, 1995  
ISSN: 8750-6874  
HOMEPAGE: <http://www.informationweek.com>

RECORD TYPE: Review  
REVIEW TYPE: Product Analysis  
GRADE: Product Analysis, No Rating

Solstice AutoClient, network management automation software from Sun Microsystems, helps reduce system administration and support costs. The product uses innovative file cache and sharing methods to make intelligent clients act more like mainframe terminals. Systems administrators would rather manage mainframe- **type** client/ **server** 'terminals,' which are really powerful, low-cost desktop PCs or workstations. They replace less scalable terminals. With AutoClient, users can store files and applications on a central server and download as needed to connected clients. Users have access to desktop **machine processing** power, which runs **applications** and **requires** less network use than does a 'dumb' **terminal** . AutoClient machines use less network bandwidth, which allows more clients to connect. The advantage for the system administrator is the fact that such tasks as software distribution are handled by the server.

COMPANY NAME: Sun Microsystems Inc (385557)  
DESCRIPTORS: Network Management; Network Administration Tools; Network Software; Sun; System Monitoring; Client/server  
REVISION DATE: 19990830

21/5/15

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00076814 DOCUMENT TYPE: Review

**PRODUCT NAMES:** Performance Monitors (830038); Client/server (832383)

**TITLE:** Scale Up with TP Monitors  
**AUTHOR:** Gray, Jim Edwards, Jeri  
**SOURCE:** Byte, v20 n4 p123(5) Apr 1995  
**ISSN:** 0360-5280  
**HOME PAGE:** <http://www.byte.com>

RECORD TYPE: Review  
REVIEW TYPE: Product Analysis  
GRADE: Product Analysis, No Rating

When a client/server system scales up to hundreds of clients issuing requests from a single **server** , a transaction **processing** (TP) monitor becomes **necessary** . A typical **client / server application** dedicates a single server process per client, although this model has scalability problems. A server process per server model may overcome this problem, but still does not scale to shared-memory symmetric multiprocessors. This suggests a process per application server partition, which specializes a process to service a particular function. The system is scaled by adding servers for each application. This model is used for scaling up several **application types** . A router function model provides a more scalable design. In this model, a client connects to a router, which brokers requests out to servers. Most TP monitors use a three-ball model, where the client does data capture and local data processing, sends requests to routers, which then broker the requests to server processes.

COMPANY NAME: Vendor Independent (999999)  
SPECIAL FEATURE: Charts  
DESCRIPTORS: Performance Monitors; Client/server; Network Software; System Monitoring; Network Management; System Performance; Network Administration Tools  
REVISION DATE: 19950930

21/5/16

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00071185 DOCUMENT TYPE: Review

**PRODUCT NAMES:** CheckIt Diagnostic Kit (627836)

**TITLE:** System Snoop Tells Inside Story

**AUTHOR:** Albinus, Philip

**SOURCE:** Windows Magazine, v5 n11 p144(1) Nov 1994

**ISSN:** 1060-1066

**HOME PAGE:** <http://www.winmag.com>

**RECORD TYPE:** Review

**REVIEW TYPE:** Review

**GRADE:** A

WinCheckIt is a group of system utilities for Windows machines that track system **performance** and make any **required** corrections to configuration. The product deletes unneeded applications and duplicate or orphan files; it also performs diagnostics, maintains the System Summary **hardware / software configuration** list, and does other maintenance tasks. On first launch, WinCheckIt gathers data about the specific PC; during test this process was completed in under two minutes. The test also determined the correct DOS and Windows versions, listing BIOS maker and the presence of a two-button mouse. Clean Up finds unwanted files, and Uninstalled removes unwanted files and icons. WinCheckIt has particularly strong report functions, with a wide **variety** of detailed reports on hardware, **software**, and memory use.

**PRICE:** \$50

**COMPANY NAME:** TouchStone Capital Group Inc (330973)

**SPECIAL FEATURE:** Screen Layouts

**DESCRIPTORS:** Windows; System Utilities; Computer Equipment; Configuration Management; IBM PC & Compatibles; System Performance; Technical Support ; Computer Diagnostics

**REVISION DATE:** 20010930

21/5/17

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00070807 DOCUMENT TYPE: Review

**PRODUCT NAMES:** Best/1 (543276); Router Manager (506923); TrendTrak (459593); Network General Reporter (528072); NetMaker XA XA (413453)

**TITLE:** A Rapacity for Capacity Planning

**AUTHOR:** Bort, Julie

**SOURCE:** Client/Server Computing, v1 n10 p88(5) Oct 1994

**ISSN:** 1059-3470

**RECORD TYPE:** Review

**REVIEW TYPE:** Product Analysis

**GRADE:** Product Analysis, No Rating

Network administrators for client/server systems must decide if capacity planning tools are worth their often large prices. The products collect data for current capacity, as well as node, server, and wire **use**; predict future **CPU workload**, I/O, and memory/bandwidth **requirements**; and model related configurations. Such products as Best/1 Performance Assurance for UNIX perform this way, but cannot collect local area network (LAN) or wide area network (WAN) use data. Router Manager, however, gathers data for routers, but cannot simulate activities. A financial services uses TrendTrak to plan server needs and provide usage tracking data. A regional carrier unit uses Reporter to analyze wire trends and capacity; the tool is automatic enough to allow proactive monitoring and trending. NetMaker XA, a

bandwidth capacity planning tool, has an object-oriented (OO) application programming interface (API) that supports customized data manipulation.

COMPANY NAME: BMC Software Inc (467219); StonyBrook Services Inc (583529); INTRAK Inc (558711); Network Associates Inc (613304); Make Systems Inc (513253)  
SPECIAL FEATURE: Charts Graphs  
DESCRIPTORS: Capacity Planning; Network Software; LANs; Network Design; Network Administration Tools; UNIX; Client/server  
REVISION DATE: 20010830

21/5/18

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00070101 DOCUMENT TYPE: Review

PRODUCT NAMES: Kurzweil Voice 1.0 Windows (522309)

TITLE: Interfacing DSP Filtering to Win32s Allows PCs to Recognize Speech  
AUTHOR: Staff  
SOURCE: Personal Eng & Instrumentation News, v11 n9 p58(3) Sep 1994  
ISSN: 0748-0016  
HOMEPAGE: <http://www.pein.com>

RECORD TYPE: Review  
REVIEW TYPE: Product Analysis  
GRADE: Product Analysis, No Rating

Kurzweil Applied Intelligence waited until Microsoft released its Win32s extension to Windows 3.1 before releasing its Kurzweil Voice for Windows 1.0 product, since recognition of a large vocabulary of spoken words on a **PC requires 32-bit processing**. The **hardware** and **software** combination lets users dictate text and commands to Windows applications. Speech recognition is speaker independent, and has an accuracy rate of at least 85 percent. For real time filtering of captured speech, a DSP-based data acquisition system must supply data conversion, and process each spoken word as the next one is pronounced. The hardware digitizes the voice input, then filters the data into discrete units.

PRICE: \$995

COMPANY NAME: ScanSoft Inc (088358)  
SPECIAL FEATURE: Screen Layouts  
DESCRIPTORS: Voice Recognition; Windows; IBM PC & Compatibles; **User** Interfaces; DSP (Digital Signal **Processors**)  
REVISION DATE: 20020422